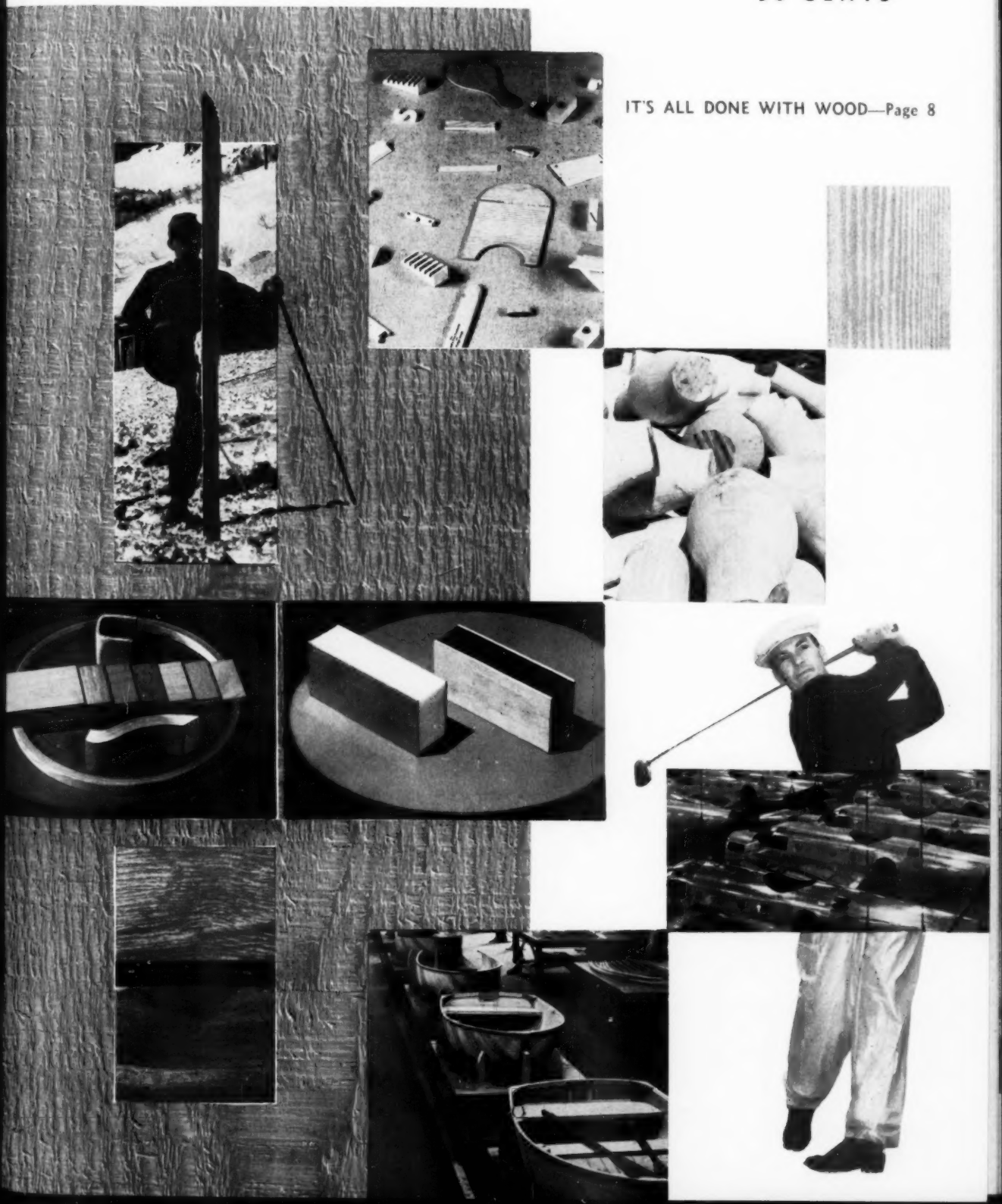
American
FORESTS
AUGUST 1953
50 CENTS



IT'S ALL DONE WITH WOOD—Page 8

POWER The McCulloch 4-30 saw has 4 *brake* horsepower! (There are many ways to measure or claim horsepower. McCulloch saws are rated exclusively by accurate dynamometer.)

LIGHT WEIGHT Weight is only 30 pounds, complete with 14-inch blade and chain. No other saws of more than 3 hp are this light!

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McCulloch Motors presents the powerful, smooth Model 4-30 gasoline-powered chain saw. It is a professional-quality saw of advanced design, built for fast, all-day sawing in timber up to 5 feet in diameter.

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NATIONWIDE SALES AND SERVICE

COUGAR AND CUBS look down on a forest fire in the Pacific Northwest

tree farming provides better fire protection . . .

A fire in the forest is one of the tree farmers' worst enemies . . . and a constant hazard for which they must always be prepared. Industrial foresters know that long-range plans for managing timber as a crop are worthwhile only when good fire control programs are in force to protect both the trees and land for future use.

Fighting a forest fire is dangerous and costly. It is easier to prevent fires than fight them . . . and since most of them are man-caused, they can be prevented.

On privately owned tree farms in the Pacific Northwest, every precaution is taken to prevent accidental fire in the woods. Here, forestland owners pool their resources for cooperative fire control, working with federal and state forest agencies. They man lookout towers in fire season, build and maintain hundreds of miles of fire access roads and operate mechanized fire-fighting equipment when needed. Men are trained in all phases of prevention and suppression . . . and are directed in the field by modern short-wave radio. As a result, tree farmers are effectively reducing the amount of timber lost through forest fires.

All of the forestlands owned by Weyerhaeuser Timber Company are managed as protected tree farms under the direction of skilled foresters. *Write us at Box A, Tacoma, Washington for your free copy of our colorful new booklet, Tree Farming in the Pacific Northwest.*

To help keep America green, tree farmers across the nation are constantly on guard against destructive fires in the forest.

Weyerhaeuser Timber Company

Wood is one of the nation's most valuable and versatile raw materials. People and industry use wood every day as lumber, pulp and paper, fibers, chemicals and in many other ways. To supply this market, our company is growing trees and manufacturing a variety of forest products.

National opinion surveys indicate that the public does not know about the progress being made in industrial forestry. Weyerhaeuser Timber Company is telling part of the story in a series of national magazine advertisements such as reproduced above. The Company believes that all who are engaged in industrial forest management should tell the facts about tree farming at every opportunity.

WORKING IN THE PACIFIC NORTHWEST TO CREATE A PERMANENT FOREST INDUSTRY

Volume 59
No. 8
August, 1953

American FORESTS

James B. Craig, Editor
Dorothy B. Thompson, Editorial Assistant
Keith R. McCarthy, Assistant Editor
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COVER • *Designed by James J. Fisher*

THE AFA

The American Forestry Association, publishers of AMERICAN FORESTS, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and their part in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

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Letters

Tillamook

EDITOR:

Colonel Greeley's article on the restoration of the Tillamook area is a fascinating exposition of the state's efforts to cover up one of the most tragic blights in the nation's history. Doubtless, the state is doing all it can, but to a newcomer to Oregon the results so far seem much too inadequate.

Picture an area the size of the state of Rhode Island which was once thickly covered with magnificent Douglasfir now bleak, eroded, empty of almost all tree growth, a forest of snags and stumps, and fern patches. In winter and spring the land is dissected with thousands of rills that carve deep crevices in the undulating countryside. In summer, the brown earth lends an eerie color to the dead landscape.

Yes, the state is doing all it can, but it is a small state with very limited resources. What the Tillamook needs is hundreds of millions of dollars for rapid reforestation, fire protection, and research. Here clearly the grass roots approach of which Colonel Greeley is so fond is pitifully inadequate. An army of 100,000 CCC boys working all year 'round is needed, not a handful of prisoners and troops of Boy Scouts and occasional high school lads. Let's not kid ourselves, nor the readers of AMERICAN FORESTS.

Anthony Netboy
Portland, Oregon

Accent on Alaska

EDITOR:

That is a very nice write-up in the May issue of AMERICAN FORESTS. I hope that some of the Association people will find it possible to spend some time in Alaska as the years go forward. This is a part of the country which is ready for an increasing amount of attention and publicity on the part of conservation-interested people. We have all enjoyed the fine coverage that was given in the April number. We hope that it is a forerunner of further interest in this Territory on the part of people like the ones who comprise The American Forestry Association.

In fact, the more I think of it, the more it seems to me that it would be appropriate for The American Forestry Association to sponsor an Alaskan trip on the same general basis as its sponsorship of the Trail Rider trips. . . . I think it would not be difficult to work out a variant of one of these trips which would give emphasis to resource and development aspects of the Territory, and would, at the same time, be as interesting or more interesting than the commercially-sponsored tourist trips.

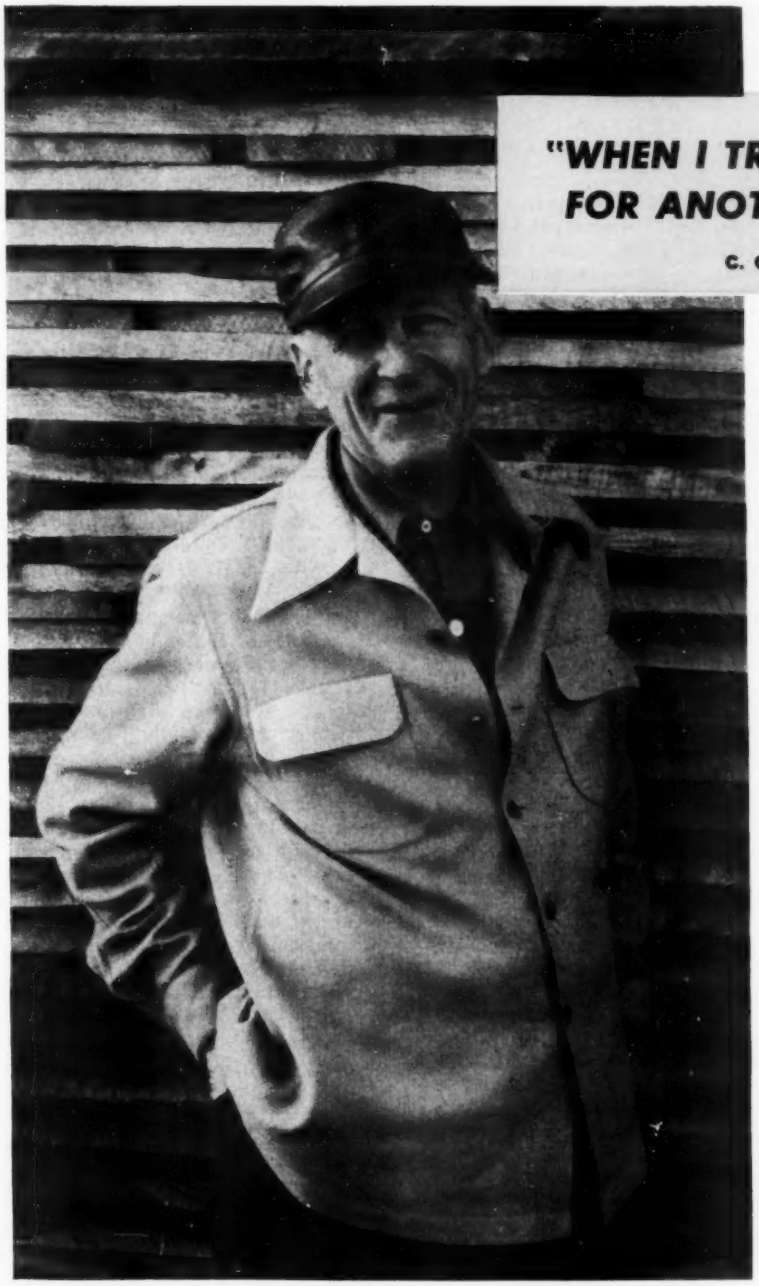
A. W. Greeley
Regional Forester
Juneau, Alaska

Recreation, Please!

EDITOR:

In reading recent issues of AMERICAN FORESTS I have been overwhelmed by the almost complete accent on forestry. That's

(*Turn to page* 59)



"WHEN I TRADE, IT WILL BE FOR ANOTHER CAT*"

C. G. BRYANT, SCOTTSVILLE, KENTUCKY

THAT's laying it on the line. Matter of fact, that's what Mr. Bryant did three years ago when he needed more power in his mill. His Caterpillar D8800 Engine had done such a good job for him, he replaced it with a D13000. Developing 150 intermittent HP, this unit drives a 60" circular saw, two 16" trimmer saws, two 16" edgers and a 36" cutoff saw. Production averages 12,000 bd. ft. per day. "My D13000 is economical to operate," Mr. Bryant says. "Parts are available and service is the best."

You need *dependable* power to meet production schedules—and *low-cost* power to make money. You get *both* in rugged Caterpillar Engines. They use No. 2 furnace oil *without fouling*, for real *savings*. They respond quickly to load requirements with a good reserve of lugging power, for *smooth* sawing. They're honestly rated. No hocus-pocus—they provide *all* the power advertised. And no matter where you are, your Caterpillar Dealer backs you up with fast, on-the-spot service when needed.

All these and other features add up to high production at minimum cost. See your dealer today—ask him to *show* you how Caterpillar Engines can save you trouble and increase your profits!

CATERPILLAR, Peoria, Illinois.

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WE'VE MADE CLAIMS... NOW MAKE US PROVE THEM

Besley Urges Enactment of Bill To Rectify Mining Law Abuses

ENACTMENT of Congressman Clifford Hope's Bill (H.R. 5358) to rectify widespread abuses on public lands under the mining laws was urged by Lowell Besley, newly appointed executive director-forester of The American Forestry Association at hearings on the proposed measure July 16 before the House Committee on Agriculture. Six articles previously published by AMERICAN FORESTS magazine on these abuses in a number of western states were submitted for the record by Mr. Besley.

In his first appearance on the Hill since becoming executive director-forester, Mr. Besley told the committee that "The American Forestry Association has been greatly concerned over the reportedly widespread abuses which have taken place under existing laws. It fully recognizes the great importance of our mineral resources to the national welfare and believes that the legitimate miner and prospector should be fully encouraged to locate and develop valuable mineral resources. However, the Association is definitely opposed to people who attempt to use the mining laws as a means of acquiring government lands for other than mining purposes. We are of the opinion such practices should be stopped."

Reprinted from March issue of *American Forests*

As recommended by the Board of Directors of the AFA in March 1952, the House Committee on Agriculture has made a careful study of reported abuses. Rep. Hope's Bill is the result of that study. It proposes that: 1) all claims be filed with District Land Offices rather than the county courts; 2) claimants who fail to patent their claims in ten years would automatically lose them; 3) that the Forest Service would have the right to manage and sell timber on claims not required by the permittee in working the claim (under the present laws the permittee can hold up sale of such timber indefinitely); 4) permittees making use of timber on their claims must follow accredited Forest Service cutting practices; 5) placer miners must follow approved practices to prevent serious erosion of land.

Under existing laws, the government is not permitted to sell any timber from claims nor does it have the right to move in and salvage blowdown timber. The Hope Bill would remedy this situation by permitting orderly disposal of timber from claims.

Mr. Besley told the committee "I am a professional forester and not a lawyer and would not have the temerity to comment in detail on each legal provision of the bill. We do know what we want the bill to do. We want it to facilitate efficient management of our national forests in the public interest and at the same time to encourage the legitimate miner and prospector to discover and develop new and known valuable resources also in the public interest."

Mr. Besley said that a careful

(*Turn to page* 38)

By ALBERT G. HALL

MANNING OF THREE IMPORTANT COMMISSIONS IS NOW BEING UNDERTAKEN by President Eisenhower. Under authority of Public Law 108 and Public Law 109, the Commission on Organization of the Executive Branch of the Government (former Hoover Commission) will be reestablished, and another study group, The Commission on Intergovernmental Relations will be set up. The new "Hoover Commission" will make recommendations for reorganization of the executive establishment. It is to serve until May 31, 1955. The Commission on Intergovernmental Relations will study the proper role of federal and state governments, and will investigate federal-aid programs to determine their justification, need, and the desirability of their elimination, curtailment, or enlargement. The 25-man commission will make its report by March 1, 1954.

A NATIONAL AGRICULTURAL ADVISORY COMMISSION OF 18 MEMBERS is being established to review policies and administration of farm programs and related matters administered by the Department of Agriculture and to advise the Secretary of Agriculture in regard thereto.

MINING CLAIMS IN THE NATIONAL FORESTS, IN ADDITION TO CREATING HEADACHES for national forest administrators also have developed jurisdictional strife among the legislators. Two measures have been introduced to assist in reducing the alleged abuses of the forests by mining claimants. The House Agriculture Committee has concluded hearings on the Hope Bill, H.R. 5538, which would permit mining claimants to utilize the surface timber only to the extent necessary to mining operations. (See story on opposite page.) In the meantime, the House Committee on Interior and Insular Affairs has reported favorably on H.R. 4983 by Representative D'Ewart. Both bills apparently had been referred by their authors to the committee most likely to give them favorable consideration. Representative Hope of Kansas is chairman of the House Agriculture Committee; Representative D'Ewart of Montana is a member of the Interior and Insular Affairs Committee. A compromise solution is now being sought by a subcommittee composed of members of both committees. One of the mining claim difficulties will be eliminated if H.R. 334, now passed by the House, becomes law. The measure, introduced by Representative Regan of Texas, provides that sand, stone, gravel, and cinders not be subject to acquisition under the Mineral Leasing Act.

PROVISION FOR LOANS FOR MANAGED FOREST TRACTS by amendment of the Federal Reserve Act so as to authorize national banking associations to accept such lands as collateral has been the subject of hearings before both Senate and House committees on Banking and Currency. The amendment is proposed in S. 2069 by Senator Cordon of Oregon and H.R. 5063 by Representative Ellsworth of Oregon. Testimony has been favorable, although the Deputy Comptroller of Currency, William M. Taylor, recommends that timber loans be restricted to a three-year maturity period instead of ten years as provided in the bills. On the other hand, the forestry witnesses from the government, Walter H. Horning, chief of the Division of Forestry, Bureau of Land Management, and H. R. Josephson, chief, Division of Economics, U. S. Forest Service, spoke for maturity beyond ten years as necessary to reforestation and long-term forest land development.

(Turn to page 58)

The Higgins Lake Committee of 1946 (above) paved the way for AFA's first Program for American Forestry. More than half of this group returned for the 1953 conference in June (shown below)

Reunion at Higgins Lake

THE American Forestry Association's second Higgins Lake conference in June to modernize its 1947 Program for American Forestry turned out to be something of a reunion. More than half of the conservationists that attended the first Higgins Lake meeting of 1946 turned up for the 1953 event. Their recommendations (See page 25) will be submitted for the consideration of the Fourth American Forest Congress October 29-31 in Washington, D. C. Following that, the Board of Directors of the AFA will adopt a revised Program for American Forestry.

To identify "repeaters" at the 1953 conference (see lower panel) the names of those individuals who attended both conferences are printed in bold face type. Reading left to right, seated: Dr. Wilson Compton, Herndon, Va.; **George O. White,** state forester, Missouri; **Charles H. Sage,** vice president, Kimberly-Clark Corp.; Don P. Johnston, president, AFA; **Samuel T. Dana,** chairman of conference, Ann Arbor, Mich.; **Tom Wallace,** editor emeritus, Louisville Times; **W. B. Greeley,** vice president, West Coast Lumbermen's Assn.; **Stanley G. Fontanna,** director, School of Natural Resources, University of Michigan.

Standing left to right: James B. Craig, editor, AMERICAN FORESTS; Dr. Ira N. Gabrielson, president, Wildlife Management Institute; Fred E. Hornaday, secretary, AFA; **DeWitt Nelson,** state forester, California; Lowell Besley, executive director-forester, AFA; **John B. Woods,** vice chairman of the conference, Salem, Ore.; Peter E. Terzick, editor, Carpenter Magazine; W. S. Swingler, assistant chief, U. S. Forest Service; Ovid Butler, executive director emeritus, AFA; Leonard G. Carpenter, president, McCloud River Lumber Co.; H. B. Shepard, forest economist, Federal Reserve Bank of Boston; **Charles R. Ross,** Oregon state farm forestry specialist; **A. Z. Nelson,** forest economist, National Lumber Manufacturers Asso.; **John F. Shanklin,** chief, Land Use Management, Division of Land Utilization, U. S. Interior Department; Edward C. Crafts, assistant chief, USFS; A. J. Robinson, Great Northern Railway Co.; **Julian F. McGowin,** secretary-treasurer, W. T. Smith Lumber Co.; **Dr. George A. Garratt,** dean, School of Forestry, Yale University; F. J. Fjelsted, manager, Weber Basin Water Conservancy District; **Lloyd E. Partain,** sales manager and farm market director, Country Gentleman; E. L. Demmon, director, USFS Southeastern Forest Experiment Station; Ernest L. Kolbe, forester, Western Pine Asso.; **Corydon Wagner,** vice president, St. Paul & Tacoma Lumber Co.

EDITORIAL

Higgins Lake–1953

It was a creative conference. As a demonstration of solid concentration over a three-day period it would be difficult to match. Nucleus of the conference was the same veteran group that laid the groundwork for AFA's first Program for Forestry in 1946—plus a few newcomers equally able and sincere. For whether it was the Wallaces, Woods and Nelsons of 1946 or the Comptons, Crafts and Kolbes of 1953, all were alike in their devotion to a cause, the soundness of their judgment, their practical approach to complicated questions.

They put in long hours. Starting at 8:30 in the morning, the meetings often continued until after midnight. There was little time for recreation. When a severe northern peninsula electric storm knocked out the resort's power system for a 24-hour period, they continued their work by lantern and candlelight. Result of these labors is the well-known report published on pages 25 to 38 in this issue of AMERICAN FORESTS. A constructive document, it will test the mettle of the Forest Congress when it endeavors to refine and enhance it in October. Out of both meetings should emerge a workable program that, once it is approved by the AFA, will serve forestry well.

One key to the substance of this Higgins Lake report is found in the introductory statement on page 27. It reads in part: ". . . The most urgent steps in American forestry have now been taken. The actions now necessary fall into the category of long-range planning and adjustment, consolidating gains, filling gaps and improving methods." In other words, nothing new or startling is proposed. Stress is laid on the perfection of existing agencies and tools, on greater coordination of effort and closer cooperation by all groups. That's the tone of the report. It reflects the harmony that prevailed throughout the entire session attended by experts representing every point of view.

The work of the Higgins Lake Committee is now completed. The American Forestry Association is proud of these men and the contribution they have made. As Chairman Samuel T. Dana commented in dismissing the group, "This committee met its responsibilities." The members of The American Forestry Association now have a responsibility of their own. That is to carefully study and weigh the report starting on page 25 in terms of their own individual beliefs and convictions. And since the Higgins Lake Report represents the groundwork for a forestry program they will eventually be asked to accept, members should be prepared to speak up for convictions that crystalize as a result of reading this report. They can best do that by attending and participating in the Fourth American Forest Congress at the Statler Hotel in Washington, D. C., October 29, 30 and 31.

It's Time To Crack Down

Last month a brush fire broke out in the Mendocino National Forest in California. It started out about 2:30 on a hot, dry Thursday afternoon as just another forest fire. Of small-to-medium size as such blazes go, and man-caused like 90 percent of all forest fires, it was considered treacherous though tractable by the fire bosses who had a hundred men deployed along the fighting line. In the calm of late evening it looked as if the fire bosses were right. Watchers on Powderhouse Point could see only a ruddy glow as the spot fires began to die out. Fifteen minutes later a gust of wind from the north whipped downmountain, showering live embers into tinder-dry grass at the head of a gulch on the other side of the fire line. Twenty-four men were in that gulch. Only nine came out. The other 15 were burned to death before they could reach the top of a ridge and safety.

Though many persons have lost their lives fighting man-caused forest fires, this Mendocino incident is particularly appalling and senseless. The 15 men who were seared to death in that hell-hot gulch were not the victims of human carelessness or accident, but of incendiarism. They were killed because a 26-year-old ne'er-do-well set the fire on purpose. Because a moody-looking veteran, father of three, needed temporary employment to help mend the home broken by his propensity for plush living and aversion to steady work. He started the fire so he could get a job cooking for the crew out on the line fighting it. He got the job all right. In the 24 hours before he was found out, he earned 24 dollars. For those 24 dollars 15 men died one of the most horrible of all deaths; 20 children were left fatherless.

As the families of the Mendocino victims were burying their dead, Stanford Pattan, the man responsible for these dead, faced two counts of murder. Only two because 13 of the bodies taken from the scene of the fire Pattan had started were legally identifiable. The District Attorney said he didn't expect to convict Pattan on more than a second degree murder charge—carrying as little as a five-year prison term—because he didn't anticipate being able to prove premeditation.

But what about these pyromaniacs like Pattan? Certainly they are mentally ill and in many cases don't realize the possible consequences of their acts. But should they, whether their crimes involve the loss of human life or not, be let off with the minimum sentence or turned loose to vent their grudge against society another time? We don't think so. We think it's about time the courts and people took a sterner view of incendiarism. It's bad enough when some infantile personality sets a forest afire just to see things burn. But when 15 people die through this oft-condoned criminality it's time to crack down.

Wide World photo

Fritz Kreisler's famous violin is perfection in wood laminate

It's All Done With

It's a far cry from that plastic container in your refrigerator to Fritz Kreisler's violin or Ben Hogan's trusty driver, but all have one thing in common—they're products of the forest

By PAUL W. KEARNEY

FIFTY years ago it looked as if American prodigality was surely denuding our forests.

The fact is that today we still have some 630 million acres of woodlands —or about two thirds of the forest area that was standing when the Pilgrims landed. Yet we have cut, used and abused at least twice as much American timber as existed in 1620!

With present methods of logging and conservation and with new uses for wood waste, we now know that there will always be enough wood. Here are a few of the reasons:

As late as 1944, nearly 66 million tons of wood were lost each year in logging and manufacturing operations; another 43 million tons were burned as fuel in the processing plants. Today waste wood has become so valuable that some mills are actually buying coal for fuel and converting the slabs into cash! Even fallen trees, long scorned by lumbermen, bring as much as $250.

Historically, two-thirds of every tree cut used to represent waste material; 15 percent of every saw log went into sawdust. Translated into board feet, this means that we normally wasted twice as much wood as we used in an average year.

But things have changed. Today sawdust and chips are being combined with phenolic resins to form inexpensive plastics. We see them in fountain pen barrels, telephone receivers, and countless other articles deriving from wood flour, which is also an indispensable filler for linoleum.

The utilization of wastes obviously goes far beyond the conversion of scraps, chips and dust to useful ends. Today we take timber which Paul Bunyan wouldn't have used for an ax handle, and make stronger wood out of it than he ever saw!

Lamination paves the way to these new horizons — and new glues are the keys to lamination. Outstanding among these is Colpres 10, developed by the Timber Engineering Company (TECO), research division of the National Lumber Manufacturers Association. Colpres 10 sets after only ten minutes' clamping at room temperature; it is water-resistant, and far stronger than any of the woods it joins.

It is now practical to take short lengths of inferior grades of lumber and laminate them into beams of superlative strength, bent, curved or straight, as needed. One outcome is that the very newest use of wood today is merely a sudden revival of one of the oldest: shipbuilding.

In World War II most of our minesweepers were of steel, but today the perfection of the magnetic mine (which our Russian friends are said to make particularly well) renders steel minesweepers obsolete. We are now building 86, all-wood, 165-foot nonmagnetic minesweepers, plus 172 smaller ones.

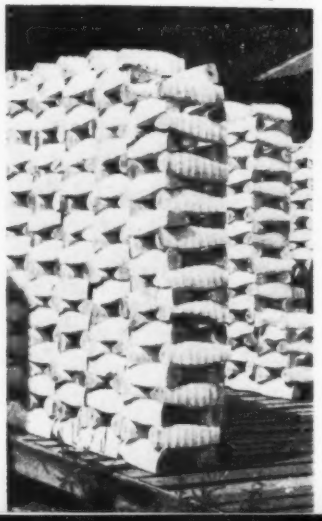
There are sharp differences between today's wooden ships and those of the past. When the renowned frigate, *Constitution* was built, its timbers had to be "seasoned" for five years; now we cure

New all-wood Army truck body in construction at laboratories of the Timber Engineering Company

AFPI photo

These neatly stacked blocks of maple are rough-cut shoe lasts

AFPI photo



Wood makes hundreds of contri tions to wonder-world of plasti

Harris and Ewing ph

WOOD

them chemically in about as many days.

Under modern traffic conditions, it would be impossible to ship from inland sawmills timbers of the size required for a 165-foot vessel; now we fabricate them at the shipyard under rigid Navy inspection.

White oak has been the traditional wood for shipbuilding. But white oak is relatively scarce. Only about one white oak tree in 200 will yield the size and quality needed. Lamination makes it possible to take bits and pieces of more abundant woods, join them into beams and planks and frames. And the resulting hulls are strong enough to promise a service life of 30 years, instead of the seven to ten years of World War II hulls.

This is the first major contribution to wooden shipbuilding in 2000 years, but it's worth a billion dollars to the lumber industry!

Laminated wood flooring is universally used for aircraft carrier

(*Turn to page* 53)

AFPI photo

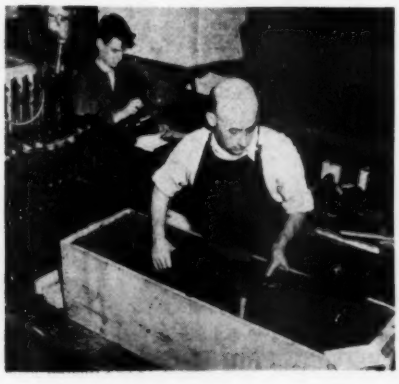
Gracefully curved rafters provide excellent examples of how laminated wood is used for structural timbers of any shape

Compregnated wood makes a wide variety of useful and highly durable articles

AFPI photo

Wood is an esential part of these Gar- and rifles being packed for shipment

AFPI photo



Use of plywood in this seiner is typ cal of way boat builders rely on panc

AFPI pho

How UNCLE SAM Takes a Timber Census

By ROBERT D. WRAY

Like a farmer estimating total production of a cornfield by taking samples as he walks through it, the forester can get some pretty accurate figures by examining a small plot of timber here, another there. It's called "random sampling"

Science has completely changed the ancient art of "landlooking." Today the forest inventory doesn't even start on the ground. It begins with an aerial photographic survey of the area that is under study

PERHAPS while driving through one of our large forests you have wondered about some of the statistics you have heard concerning our nation's timber resource. There are so many million acres of forest land in the country (the experts say) and these acres support so many billion board feet of timber. As you topped a high ridge and saw below and around you a panorama of forest land spread from bumper to horizon, you may have asked yourself, "How do they know how much timber there is? How can they measure it all? It looks as if it would take years just to measure all the trees I can see from here."

Well, it's a big job all right, but it can be done—in fact it is being done right now.

The forest and range experiment stations of the U. S. Forest Service have the never-ending job of keeping tabs on the country's timber resource. I say "never-ending" because trees are not things you can measure once and then be done with them. They are living things that grow, reproduce themselves, mature, and are harvested. Since the amount and condition of our standing timber are constantly changing, the forests must be remeasured at regular intervals so we can keep up with these changes. Just like a well-run business, a well-managed forest must have a periodic inventory taken of its stock.

Sound more than ever like a hopeless task? Fifty years ago it would have been. Only during the last couple of decades has a systematic, nationwide survey of our forests been attempted.

In the early days of forestry in this country, any statement about the amount of timber remaining in our forests was necessarily just an informed guess. Persons alleged to be familiar with certain areas of the country would scratch their collective heads and allow that there probably was so much timber in such and such a region. All these guesstimates were then added together to get a total for the whole country. The result brings to mind the old poem about the blind men who were asked to touch a certain large animal and then describe it. Each gave a fairly accurate description of the part he had felt, but all the parts certainly did not add up to an elephant.

Modern timber surveying has advanced far beyond the nebulous stage of these early efforts. Science has completely changed the ancient art of "landlooking." Things have progressed so far that a forest inventory of today does not begin in the woods. In fact, it does not even begin on the ground.

The first step in making an extensive forest survey is to photograph from the air the whole area to be covered. An extensive forest area is not photographed on one gigantic picture of course. Instead the plane flies in parallel lines back and forth across the area taking pictures at regular intervals. The result is a series of small, overlapping photos that are easy to handle and can be fitted together like a jigsaw puzzle to show the entire area. But the important feature of this patchwork method of photographing land from the air is that any two adjacent photos can be viewed under a stereoscope so height and depth as well as length and width can be seen. Indeed, the forester can listen to the current furor in Hollywood about three-dimensional pictures with a smug look on his face. For he and his colleagues have been using 3-D pictures of forests for years.

Aerial photography is the greatest boon to the timber cruiser since the invention of mosquito dope. It has

the effect of shrinking a whole country or state down to miniature size so it can be brought into the office. There the forester-photo interpreter can stride across the land as if he were wearing seven-league boots. He can see a thousand acres of forest land at a glance or he can pick out one acre and study it to his heart's content. All this with no chance of getting wet or catching poison ivy.

An experienced man can learn a lot about a stand of timber just by peering at a pair of photographs of it. He can tell pretty well what kind of trees are down there. And from the size and density of the crowns he can tell how large the trees are and how thickly they are growing. There are even instruments he can use to measure the heights of individual trees on the photos.

However, measuring *all* the nation's timber—every single tree—would be a futile undertaking, even with aerial photos. But the forester can get a remarkably accurate inventory just by measuring a small fraction of the trees. A farmer can estimate the total production of a cornfield by walking through it, noting the number of ears on a few scattered stalks, and making a mental tally of the number of stalks per row and the number of rows per acre. You may call this simple arithmetic, but the statisticians call it "random sampling."

Foresters use the same system when making a timber survey. They examine a small plot of timber here, another there, and thousands more all over the country. The samples or plots of timber to be measured are selected something like this. Suppose you have a large map of, say, the state of Pennsylvania, and several thousand small disks each representing one-fifth acre on the map. Sprinkle the disks as evenly as you can over the map as if you were sowing seed. Now the job of the forest surveyor is to find out all he can about the timber that lies under these disks. The combined results, when applied to the total forest area, give a pretty accurate picture of the timber situation.

After examining each one of these plots on the photos and classifying it as to size and amount of timber, the forester can make a statement like this: Blank County is about two-thirds forested. Of the total forest land, about 25 percent is dominated by trees large enough to be sawed into lumber; 35 percent consists mostly of trees that are too small to go to the sawmill but are large enough to be made into such products as poles, posts, ties, or pulpwood; and the remaining 40 percent is growing mainly trees of sapling size or smaller that have little or no commercial value as yet.

In addition to rating all the forest land according to these timber-size classes, he has absorbed from the photos some idea about the pattern of the forests in the area. Does the forest land occur in large blocks or in small woodlots? Are the forests generally found on the highlands, in the valleys, or on the hillsides? Are most of the stands remote, or are they easily accessible? This type of information helps him get the "feel" of the area and makes his field work easier.

If you have been wondering whether the modern forester spends all his life hunched over a desk, you will be relieved to learn that the next step in the forest survey requires him to don his boots and his plaid shirt and venture out into the woods. For although he has cornered the answer to that elusive question—how much timber is there?—he still has not pinned it down. The range of volume in each timber-size class identified on the photos is too wide to allow an accurate estimate of the total timber volume. He must get more detailed information about the amount of timber in each one of these classes and about many other things that he cannot see through the camera's eye.

The lens cannot penetrate through the thick forest canopy, for instance, and show the forester what is beneath the trees. The photos do not reveal how much reproduction is coming up in a heavy stand of timber, or what the condition of the soil is. Nor can they tell him how fast the trees are growing or what the quality of the timber is. These things he must find out for himself on the ground.

So off he goes into the woods, carrying his aerial photos with him. The job is to find, measure, and observe on the ground enough of the plots he examined on the photos to provide him with some solid, down-to-earth figures that he can apply to his photo estimates.

The photos come to his rescue again in locating these plots on the ground. The plots are marked on the photos; he can see right where they are. All he has to do is go there. Familiarity with the photos makes it possible for him to identify nearly all the objects shown on them. He can recognize houses, fields, fences,

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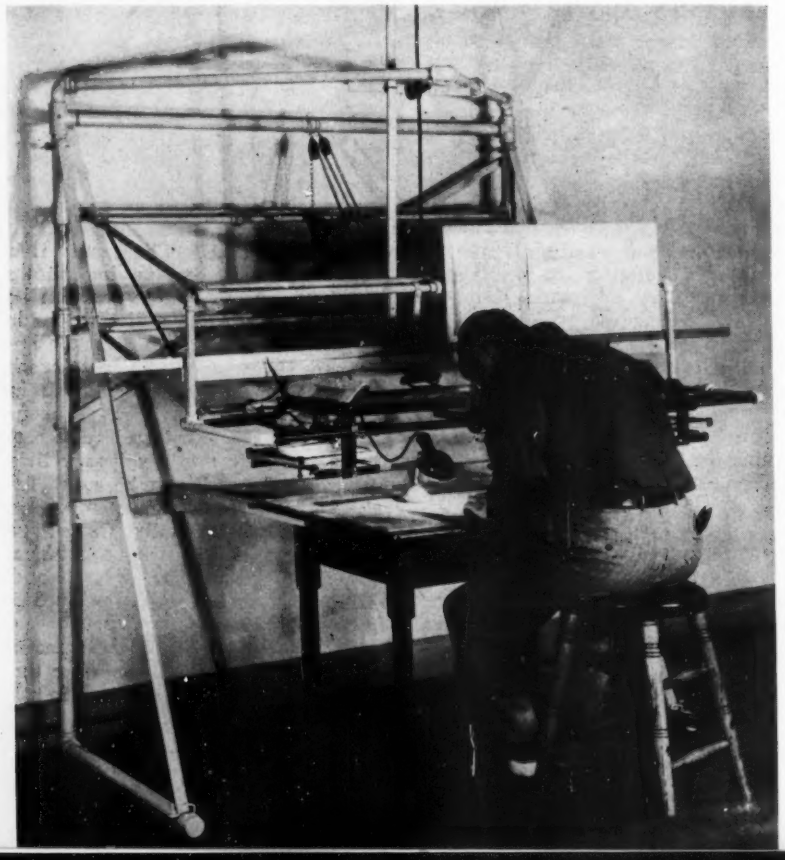
With multiscope and good aerial photos a forester can accurately type map from five to ten thousand acres of timberland in a day



AFA'S FOREST CLINIC

Pine Sawfly

By DANIEL M. BENJAMIN
Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture

THE red-headed pine sawfly, also known as LeContei's sawfly, is an important enemy of young hard pines in eastern United States and Canada. In recent years it has deformed or killed trees in thousands of acres of plantations and in roadside and park plantings throughout this area.

This sawfly generally attacks young hard pines less than 15 feet high and is rarely found on larger trees. The larvae frequently migrate from completely defoliated hard pines, however, and often infest adjacent white pine, tamarack, and Norway spruce, sometimes causing severe defoliation.

In the Lake States jack pine is the preferred host, red pine, Austrian, Scotch, and Swiss Mountain pines being attacked less frequently. In the Northeast red pine and jack pine are selected equally. In Canada red pine is preferred. Throughout the South shortleaf pine is defoliated before other species of southern hard pines. In the absence of its preferred host, the sawfly attacks the available hard pine suitable for oviposition.

The adult female is rather robust, has four wings and an orange head and thorax. The abdomen is black above with whitish sides and undersides; the wings are clear and marked with dark venation; and the antennae are black. The male also has four wings. It is smaller than the female, is entirely black, and has plumose antennae.

The eggs are oval and have thin, whitish, translucent shells. They are laid in rows of slits cut in the edges of pine needles. The shoe-shaped egg pockets, separated from each other by one-third to one-half their length, can be seen readily against the dark green of the infested pine needles.

Small larvae have brownish head capsules and pale yellow bodies. As they molt and increase in size, their head capsules change to orange red and their bodies become more yellowish and bear six rows of black spots. The larvae most commonly observed are about three-quarters to one inch long.

The cocoons are tough, single-walled, papery, red-brown, and cylinder-like in structure with rounded ends. Female cocoons are about one-half inch and male cocoons about one-quarter inch long.

Life Cycle—The sawfly spends the winter as a larva encased in a cocoon spun in the litter and soil. With the onset of warm spring weather, the larva changes to an adult and cuts its way through the end of the cocoon. From two to 35 eggs are laid per needle, and 100 to 140 eggs are concentrated in adjacent needles on a single twig.

Hatching occurs in about three weeks, the time depending upon the temperature. In the northern states larvae appear in late June, in the southern states in April and early May. The progeny of each female feed as a gregarious colony in the vicinity of their egg sites, where they chew cup-shaped notches in the needles. In the second instar they move to more exposed sites and strip the

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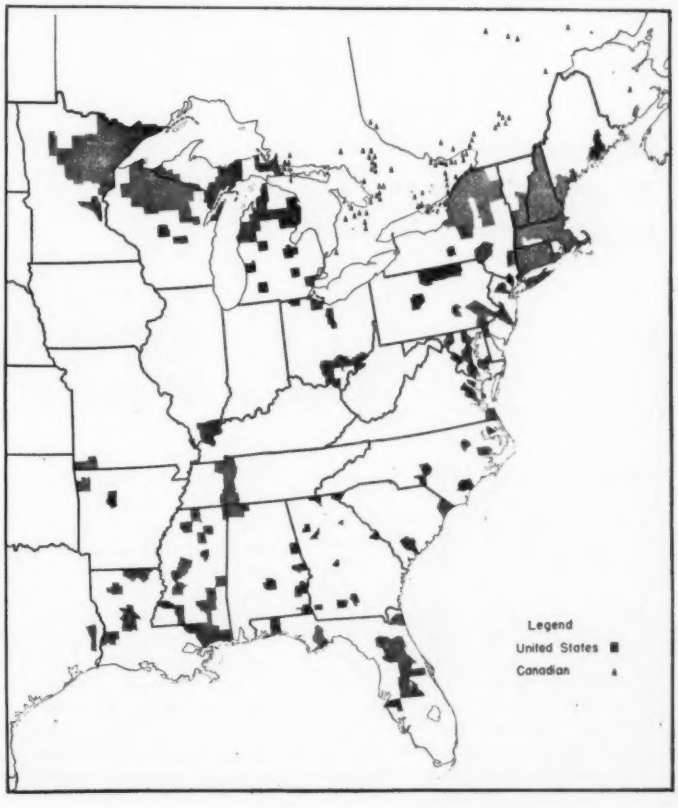
DISTRIBUTION OF THE RED-HEADED PINE SAWFLY



A new look at the

Small Woodlot Problem

By JAMES C. McCLELLAN

Representatives from all parts of the country review small holdings at conference in Chicago

W. D. Hagenstein

E. L. Kolbe

Some Basic Forest Facts

AREA:

Total forest area of the United States	622,000,000 acres
Commercial forest area	459,541,000 acres

OWNERSHIP:

Privately owned forestlands	343,165,000 acres
Large holdings over 50,000 acres	11%
Medium size 5,000 to 50,000 acres	7%
Small holdings under 5,000 acres	57%
Publicly owned forestlands	116,376,000 acres
Federally owned or managed	19%
State, county, municipal	6%

OWNERSHIP OF TRACTS UNDER 5,000 ACRES:

Area	*Number*	*Average Size*
New England	243,719	72 acres
Middle Atlantic	514,788	64
Lake States	586,347	42
Central States	987,353	41
[illegible] States	121,607	25
[illegible]	525,706	63
Southeast	677,750	86
West Gulf	446,000	69
Northern Rocky Mountain	20,930	185
Southern Rocky Mountain	7,383	239
Pacific Northwest	[illegible]390	16[illegible]
California	14,[illegible]	[illegible]
Total United States	4,[illegible]	32 [illegible]

TREE PLANTING:

Privately owned lands planted in 1952	406,930 acres
Public lands planted in 1952	116,005 acres
Total 1952 tree planting in United States	522,935 acres

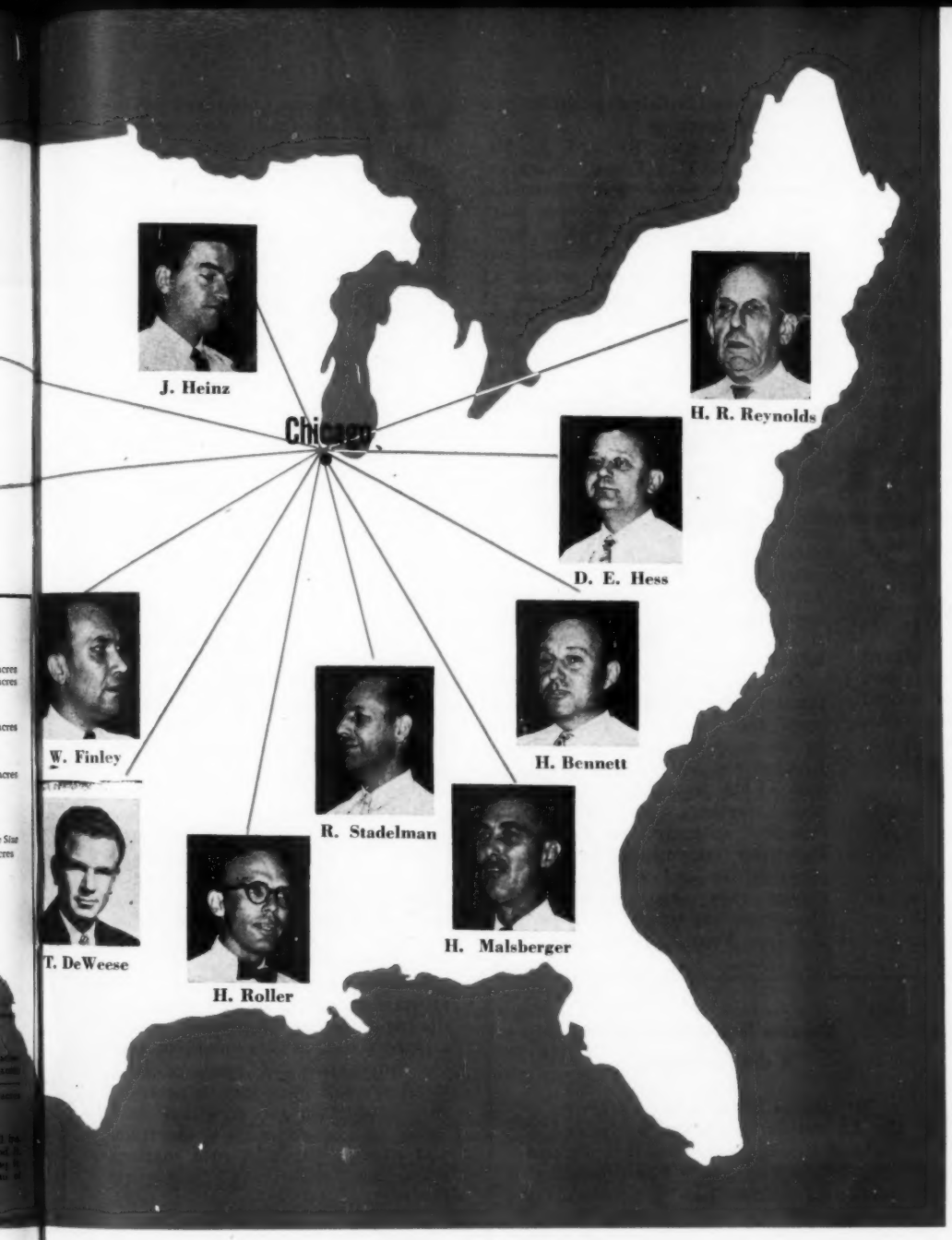
WOOD PRODUCT CONSUMPTION IN UNITED STATES:

Per capita consumption paper and paper board (1952)	396.3 lbs.
Per capita lumber consumption (1952)	342 bd. ft.
Per capita plywood consumption	16 sq. ft.
Population of United States (1953 estimated U. S. Bureau of Census)	159,000,000

THERE are about four and a quarter million small, farm-size woodlots in the United States. They average 62 acres in size and together account for 57 percent of the commercial timberland this country must rely on for the wood it needs to make lumber, paper, plywood, and other products essential to comfort and security.

The owners of these woodlands, most of them small farmers, receive a lot of attention from wood-using industries, federal and state governments, and the forestry profession generally. Farm woodland forestry commands interest and support at every level of American society from Main Street to Manhattan. Though time, talent, and money, in ever-increasing amounts, have been poured into woodland owner education, the small farm-size woodlot remains the problem child of American forestry.

Seven years ago when the U. S. Forest Service published its last national appraisal of management standards on forest lands, cutting practices on 71 percent of the wood-



lot-type timberland was classed as "poor or worse."

As the national coordinator of the 35-state American Tree Farm System, American Forest Products Industries has had a proprietory interest in encouraging wise woodlot management. More than 4400 individual woodland owners cooperating in its 28 million acre Tree Farm System are growing repeated crops of timber on the same land.

Last autumn, the lumber, pulp and paper, and plywood company executives who make up AFPI's board of trustees decided it was time to take a new look at the woodlot situation. The best way to do this, they reasoned, was to call a national conference where people with actual working experience could get together for a free and open discussion that would bring the broad subject of farm forestry into focus for careful examination and review.

Recently (June 25 and 26), nearly 100 representatives of wood-using industries, associations, federal and state conservation agencies, consulting foresters, forest cooperatives, railroads, and other groups interested in woodland management assembled in Chicago's Conrad Hilton Hotel for the conference.

They were greeted by AFPI's president James L. Madden. "This is a working conference," the Boston pulp and paper manufacturer told them, "where all of us can talk, listen, discuss, analyze, and learn.

"Seven years ago, American Forest Products Industries called a national conference to get the advice of everyone concerned with the forest resource situation in the United

States," Mr. Madden recalled. "At that time, the matter of bringing the country's small woodlands into full and continuing production was recognized as the nation's number one forestry problem. I believe all of us here today are still in agreement on that point."

The purpose of the woodlot conference was outlined by AFPI's board chairman, Colonel William B. Greeley, when he said: "The forest industries want particularly to learn how they can best aid woodlot management in collaboration with other groups in the field.

"The changing economic status of forestry in the United States has brought opportunity to the doorsteps of millions of little landowners," Colonel Greeley continued. "Spreading better forest practices over these little properties benefits woodlot owners as well as consumers."

The two-day conference featured talks by 29 different leaders and workers in farm forestry and related fields. Complete texts of these talks, together with transcripts of all discussions, are available from American Forest Products Industries.

To give AMERICAN FORESTS readers an up-to-the-minute picture of developments on the farm forestry front around the United States, excerpts from most of the Chicago Conference reports follow. The selection was made in an effort to give readers the broadest possible geographical coverage.

Chief Forester Richard E. McArdle, of the U. S. Forest Service, expressed the belief that "there has been substantial improvement since 1945" in the management of farm-size woodlands. He estimated that "somewhere around 15 percent of the small-owner acreage is now in the good management class." Chief Forester McArdle added that a sample survey made by the Forest Service in 1945 had showed about four percent of the small forests were being handled well enough to grow reasonably adequate timber crops for the future.

Farm woodlots in the United States produce about $700,000,000 worth of sawlogs and other forest products a year, the Forest Service chief stated. He added that wood harvests from small non-farm woodlands would bring the total annual timber harvest figure to at least a billion dollars.

Development of a "Tree Farm family" idea in the states of Mississippi and Tennessee was described by foresters from the A. DeWeese Lumber Co., of Philadelphia, Miss., and Nickey Brothers, Inc., of Memphis. Members of the "Tree Farm families" sponsored by these forest industries receive free forest management advice and assistance and in return give the companies first chance to buy timber harvests from the Tree Farm.

Tom DeWeese, president of the Mississippi company, described the "Tree Farm family" plan as "the only logical and realistic answer in helping our neighbors who own timberlands to practice forestry and grow more than they had in the past. . . . The tree farmer pays for actual labor expenditures involved in planting, timber stand improvement and line marking but does not pay for supervisory or professional service or timber marking."

In commenting on results from his company's "Tree Farm family" program, Russell Stadelman, of Nickey Brothers, said: "We have gained by less fire damage on these woodlots and also on our own forest lands. In the fall of 1952 over ten percent of Tennessee forests burned during a two-month period of critically dry weather. We lost less than one-tenth of one percent."

W. C. Finley, forester for the American Walnut Manufacturers Association and the Veneer Association, summarized farm woodlot management conditions in the Central and Lake States when he said: "We believe we can most effectively contribute to the timber resources by improving industry buying practices and cutting standards. We have established a system of industry-owned farm woodland demonstration forests in order to properly demonstrate farm woodland management and proper harvesting practices."

Speaking for the states of West Virginia, Kentucky and Tennessee, Howard Bennett, chief forester for the Appalachian Hardwood Manufacturers, Inc., of Cincinnati, stressed the importance of working with small sawmill operators to promote the production of products best suited to meet demands of the trade and steering products into markets where they will bring the highest return.

E. L. Kolbe, chief forester for the Western Pine Association, pointed to the well organized Tree Farm program in his 12-state area. "We don't say that the farm woodlot is our number one forestry problem. We all know in the western pine region that the number one forestry problem is beating the bugs to the ripe and over-ripe trees. Even the woodlots have some of that overall problem."

More than 750 professional foresters are now employed in the Douglasfir region of Oregon and Washington, according to W. D. Hagenstein, of the Industrial For-

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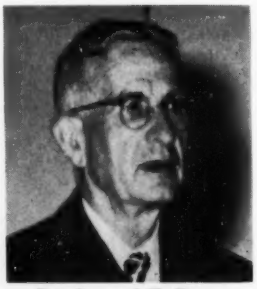
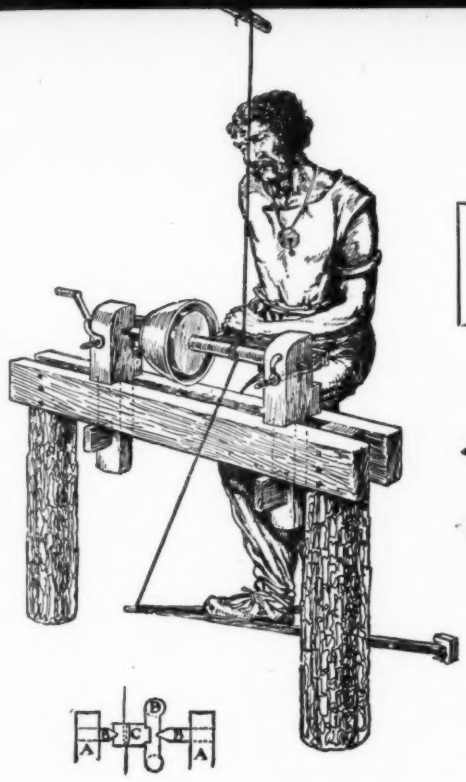


Dr. Samuel T. Dana

Dana Summarizes Conference

Dr. Samuel T. Dana, dean emeritus of the University of Michigan's School of Natural Resources, summarized the conference when he said: "There is still so much to be done there is ample room for useful service by all groups now in the field." He added that forestry on the farm will be most successful if it is integrated with all other farm activities. "Certainly the benefits to the general public resulting from good management of small woodlands is sufficient to justify the same kinds of assistance from federal and state agencies as are offered the growers of other crops," Dr. Dana said. "Just how far such assistance should go in the form of education, subsistence and subsidies is a matter of public policy to be determined by Congress and the state legislatures. . . . With respect to the controversial subject of free service, my own reaction is in favor of making a nominal or substantial charge for service rendered by public agencies in the form of actual assistance in the management of the forest. I believe that such a fee is reasonable. . . . People actually value more highly that which costs them something than that which does not."



HISTORY OF FOREST TOOLS

THE LATHE

By CREIGHTON PEET

SURPRISINGLY enough the lathe, which we think of as a complicated modern machine, was used in a simple form thousands of years ago. In fact the lathe was probably the first machine tool for wood-working ever used. Pliny, the Roman writer, says it was invented in 560 B.C., but others say it was in use at least a thousand years before that.

Undoubtedly the idea for the lathe came from the potter's wheel on which a lump of clay is shaped into round objects when the wheel revolves on a vertical shaft.

The lathe works horizontally, of course, the piece of wood worked on being supported at each end while it is turned, and shaped with gouges, chisels and other tools.

No one knows how long ago woodworkers in Asiatic countries first went into forests with nothing but a few crude chisels and ropes, and rigged up lathes on which they turned beautiful and complicated objects. The procedure was very simple. The log to be turned was set up on spikes or spindles between two nearby trees, so that it could turn easily. Then a rope was fastened to the end of a long, springy branch in one of the trees overhead, and wrapped once or twice around the log to be worked, and finally brought down to hang in a loop a couple of feet from the ground. For a tool rest a thin, straight piece of wood was lashed to the two trees a few inches from the work.

The lathe operator put one foot in the loop at the lower end of the rope and pushed down. This made the log turn several times — in one direction, of course. Then he let the springy branch pull the rope up-

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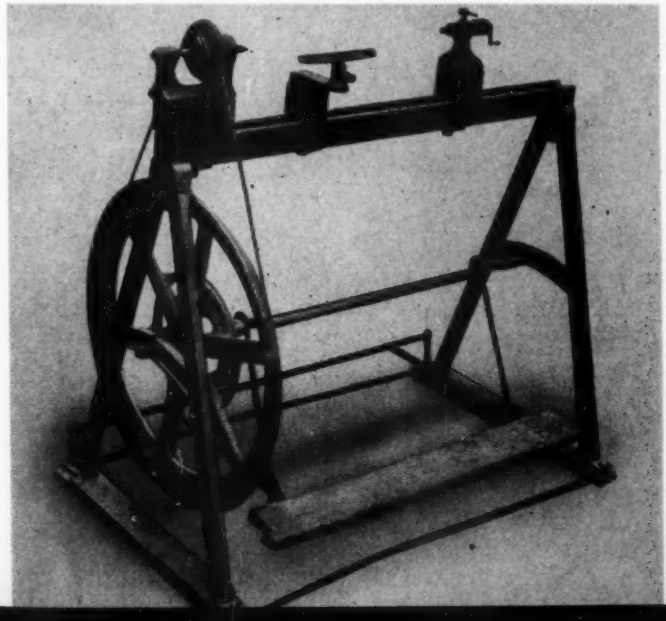
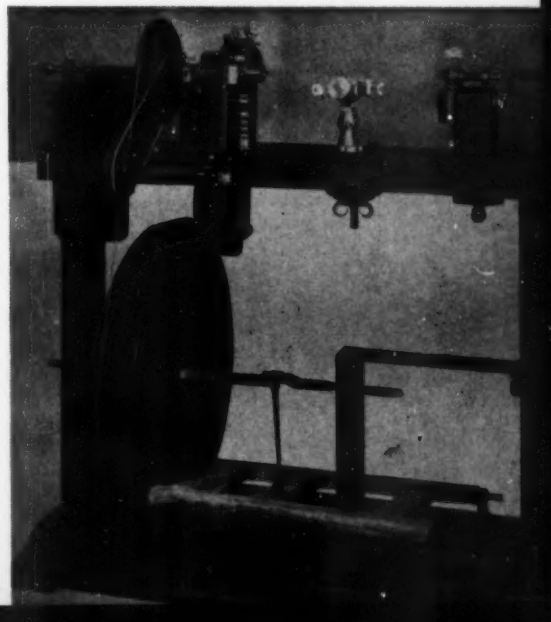
Use of a big wheel and treadle for continuous turning was one of the first improvements in development of the lathe



This sewing machine-like lathe was a predecessor of today's precision tools



BURN

W

ON THE Sopchoppy highway in Florida not long ago two grocery boys halted their delivery truck and spent a few minutes setting fire to the woods before finishing up their route. Last January, four men met at high noon near Brooklyn, Miss., and set 1000 forest fires along a 40-mile stretch of road in the DeSoto National Forest. On Louisiana's Funny Louis Bayou, setting the woods on fire has rivaled square dancing as a pastime for more than 20 years. Why?

Why was Sweet Emory Lolley, a "cracker" in an upper Florida county, a confirmed timber arsonist most of his life? Why did two construction workers with good jobs in that same state burn up the scenery along nine miles of Crooked River road "just for the hell of it"? Why should a band of arsonists in Mississippi spread terror and destruction through Pearl River county for two days and nights setting fire to their only visible means of support, the piney woods?

There are almost as many reasons as there are people living on the creek banks and back roads of the deep south, where the bulk of criminal woods burning occurs each year. But there's only one important reason behind it all: They know they can usually get away with it. In the first place, the criminal does his handiwork in the solitude of the lonely pinelands and is gone by the time an investigator shows up. If he's caught, in most cases he gets away with a light fine or a weak warning from the judge. Few segments of the judiciary system of the south have

Tossing a cigarette like this into woods is firebug's idea of real fun

Photo by Tommy Kohora

Here's the shocking story of criminal woods burning in the deep south, a pastime that now rivals square dancing in popularity

By ED KERR

WHEN THE WIND IS HIGH

awakened to the seriousness of setting forest fires, notwithstanding the fact that strict laws against them have been on the books for many years.

If this type of fire were decreasing each year like the ones caused by smokers in other states, foresters of the south would be less worried about the woods burner, but that's not the case. According to U. S. Forest Service figures, "incendiary" fires have stepped up in the south for the past 15 years, and education is not taking care of the situation. After more than 20 years of hard-hitting educational programs by every media at hand, here's what happened in Mississippi this year.

Just a few miles north of Brooklyn four young men with a stomach full of beer and a car full of matches and rope waited until they were sure that the noon sun had dried out the early morning dew, then headed their auto north. The wind was blowing a swift 25 miles an hour. They set four fires in Forrest county to divert the fire-fighting crews into that area, crossed over into Perry county and swung down the Brooklyn - McLain road. They heaved matches tied to burning rope, matches stuck into cigarettes or just plain matches—anything that would burn the woods. When they reached McLain, they headed for Beaumont and took another side route which weaved inside the DeSoto National Forest land and came out near New Augusta. They had set more than 1000 fires over a 40-mile distance which when whipped by the wintry gale combined into about 20 uncontrollable blazes traveling hell-bent-for-leather toward the Gulf. It took every man on the forest payroll plus enraged farmers of the county and

Photos by Elemore Morgan

The timber arsonist is resourceful. Here he turns the trick by lighting a match-rimmed candle in a pile of pine straw

The "slow match," a bunch of matches attached to a smoldering rope or cord, gives pyromaniac time to make getaway

180 mop-up men from Keesler Air Field to stop them all. More than 5000 acres of national forest and private timber were burned. Estimated damage was close to $50,000. Four men have been arrested and are awaiting trial.

Willful fire-setting has become so critical in some areas that forest landowners have thrown their hands up and quit reforestation efforts.

In Mississippi's Pearl River county, the Crosby Company has been the major timber industry since 1916. In and around Picayune, 1700 people depend upon this company for their weekly paychecks. One of the few companies who remained after the virgin timber was cut out in 1937, Crosby started up his naval stores plant that year and stayed in business. More than 500 of his present employees had worked for the old band mill. Due to the economical importance of the company to the county and the company's progressive reforestation efforts, it would seem they would have no trouble with fires.

Yet in March, a group of woods burners set out on horseback and in autos, and set forest fires which scorched 20,000 acres over a single week-end. This was the breaking point. L. O. Crosby, Jr., son of the founder, declared then and there that he was through planting trees in Pearl River county until "something is done about the small handful of people who wipe out everything we are trying to do."

The same is true in LaSalle parish in Louisiana, where the Nebo Oil Company is attempting to bring the cutover pine lands back into timber production. Fires, coupled with the hog problem, led to their announcement last year that they were through planting until something is done to protect their investment.

Isolated cases? Not when the U. S. Forest Service reports that almost 50 percent of the fires in the southern states were started on purpose during the past five years. In 1951, more than 36,000 fires were "incendiary" in the south, more than twice as many as by any other cause.

To find out what is meant by an incendiary fire, let's look at the definition advanced by the Committee on Breakdown of Incendiary Fires which was appointed by the Southern Information and Education Chiefs:

"Incendiary fires are fires determined to be started for personal gain, satisfaction or convenience at the expense of another."

This includes some 20 categories of fire-setters, such as those who burn the woods to green up the grass for grazing, to rid (they think) the woods of ticks, snakes and the like, and those who backfire around their homes to establish a protective line against fires. But these are not the categories that the deep south states — Louisiana, Mississippi and Florida—are worrying about today. For one reason, many of these burners can be taught not to burn: that ticks, for instance, cannot be vanquished by fire. But the "meanness" fires, the fires started for no other reason than spite, prejudice and irresponsibility —those are the ones that can't be stopped by education and the ones which are causing the state foresters the most misery.

Only ten percent of fires started in these three Gulf states are caused by

(*Turn to page* 45)

Photo by Elemore Morgan

The clothes pin gun, a unique gadget devised to shoot lighted matches from moving automobiles

Some woods burners have so perfected the magnifying glass technique that they can be in next state before sun's rays ignite matches

Florida Forest Service photo

The Man Who Played With Fire

15 fire fighters burn to death after arsonist sets brush fire near Willows, California so he could get job cooking for crew

Photo by John F. Woods, Willows Daily Journal

Stanford Pattan, right, the pyromaniac who started the Powderhouse Point fire, is grilled by Sheriff Lyle Sale, left, and District Attorney Clyde Larimer. Although 15 persons died in the fire he set, Pattan faces only two counts of murder since only two of the badly burned bodies were legally identifiable

By CHARLES J. GLEESON

WILLOWS, California—You would never pick Stanford P. Pattan from a lineup of suspected arsonists.

A quiet, pleasant-appearing man of 26, he had never been in trouble. He did not gamble nor drink to excess. His father, Phillip Pattan, had been stationed with the Forest Service here about 20 years before his transfer last spring to the Trinity Forest as a road construction foreman. The family was extremely well regarded.

Young Pattan was apparently a devoted family man, too, with three small boys and a fourth child expected within three months. But the trained investigator or a psychiatrist who knew something of his habits might have singled him out as a person worth further investigation.

For one thing, some of his former employers found him competent but lazy and untrustworthy.

He found it hard to satisfy his craving for fishing and hunting equipment and, although it later developed he was $3000 in debt, much of his earnings went for expensive guns and rods.

He could have worked Sundays but, instead, he preferred some trout stream in the coast range. And when he came back, one former employer reported, "he would tell the damndest stories you ever heard. Not mean stories about someone else, but stories that always had him as the hero."

Pattan quit one tractor-driving job last year that paid him $2 an hour and instead went to work in a service station. He began drifting from job to job and on Monday, July 6, his wife insisted on a showdown. The rent in their veterans' housing apartment was long overdue and the finance company was about to take their car.

"I'm going to my folks," she said. "When you decide to straighten

Sacramento Bee Airphoto by Harlin Smith

Rescue workers about to start taking out bodies of fire victims

yourself out, I'll come back."

Pattan had, two days before, left a job with a crop-dusting crew.

"I was desperate," he said later. "I needed a job and I needed money."

On Thursday morning, three days after his wife had left him, Pattan headed for the mountains. He was driving a 1949 green Tudor sedan.

It was not an ordinary sedan, but the most costly Buick made that year. And in the rear seat was an expensive archery set which Pattan had picked up a few days before.

For nearly an hour Pattan drove through 100-degree heat. That's average at this time of the year in the Sacramento Valley but the humidity is low. And the vegetation is tinder dry after almost a month without rain—also a normal condition at this season.

When Pattan reached the tiny community of Chrome at the foot of the coast range he drove on for a mile or two onto a side road, backed up, then tossed a lighted wooden match from his car window.

A few minutes later he stopped at a nearby ranch and chatted regarding fishing conditions as the state fire trucks went by.

He then drove to the Forest Service's lookout near the small town of Elk Creek, talked with the lookout about a half hour, then watched disgustedly as his first blaze was controlled within a mere ten acres.

Pattan's next move took him to an Elk Creek tavern, where he had a beer, and then up the mountainous Alder Springs road toward Powderhouse Point. It was back again, then, to Elk Creek but this time to a soda fountain where he had a milkshake.

By this time Pattan had made up his mind what he was going to do. Heading up the Alder Springs road again, he stopped for a moment, tossed another lighted match from the car, and drove on up the mountain.

An alert Forest Service employee spotted his green Buick on a side road a short time later. Pattan was then firing his .22 rifle as he had done several times during the day to support his alibi that he had gone to the mountains merely to check the trout streams and shoot ground squirrels.

By the time Pattan got back on the Alder Springs road the fire was roaring up the canyon ahead of a brisk southeast wind. He stopped at the ranger station and talked to

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"POTENTIALLY WORST" FIRE RAGES IN NEW YORK ADIRONDACKS

ALL of New York state's fire-fighting equipment manned by 140 men was rushed to the upper end of Long Lake at the mouth of Cold River in the heart of the Adirondack mountains on July 18th when lightning ignited what state conservation officials termed "potentially the worst fire" in New York state history. Firemen were still battling the 100-acre blaze on July 20th with the New England Forest Fire Protection Commission alerted to step in at a moment's notice.

Reason for the concern was the fact that the fire exploded in "blowdown" timber caused by the hurricane of 1950 where flattened trees run as high as 30 cords to the acre. In all, between 80,000 and 100,000 acres of windswept timber remains unsalvaged in the state's Adirondack Preserve—a wilderness "wild" area for the last 50 years. A bad fire in this area would result in grave consequences to farms and towns in the whole Adirondack region, foresters say.

Firemen hacked a trail in to the fire on the night of July 18 by following a trail up the Cold River. One thousand feet of hose was burned when the wind shifted during the night but the crews and other equipment were withdrawn safely. Aided by a light rain and the fact that the wind reduced to six miles an hour, crew foremen were hopeful they were "on top of it" on the morning of July 20 although it was reported that "anything could happen" in dry-as-tinder debris. Firemen were active trying to hack out a fireline around the fire as *American Forests* went to press.

State conservation officials said that approximately 60 percent of the blowdown timber in the Adirondacks is still unsalvaged and that some of it—in remote and inaccessible areas—will never be removed. The fact that pulp market had been "off" was one reason given for the holdup in winding up the job. Since the blowdown, pulp and paper firms and general contractors have removed 40 percent of the downed timber from Preserve areas. Pulp firms say that one reason for the slow progress is the fact that few access roads are available into more remote areas.

Following the big blowdown of 1950, state conservation officials backed by foresters focused public attention on the Preserve's vulnerable condition in a series of articles published in the New York State Conservationist. The Department did not advocate any specific changes in policy for a region that has been "wild" for half a century. As custodians of the area, the Department did suggest that it might be well to re-examine management policies for the region in the light of present-day conditions.

These proposals were greeted by a storm of protest from various groups and newspapers who saw the suggestions as a move to "open up" certain sections of the Preserve to Forest Service type timber operations. Opposing forces backed enabling legislation required to permit salvage of toppled timber—much of it over mature—in the Preserve but opposed all proposals for "zoning" or other management plans that would provide management under a multiple purpose setup.

... The Tree Surgeon

By R. R. FENSKA

AN OWNER once asked a tree-man, "Why do they call you fellows 'tree surgeons'?" The "surgeon" replied, "Mister, because we cut off limbs, fill cavities, and repair cracked joints." Now, however, we also hear the term "tree doctor." Sounds incredible, doesn't it. And yet, see what the tree doctor can do with your shade trees. You notice that your tree on the front lawn doesn't look so good as it did a while back. A commercial tree company is consulted for advice and they send a professional tree expert who makes a study of your tree.

In some ways, however, the tree doctor is handicapped. He cannot ask his "patient" where it hurts the most. He must rely entirely on visible symptoms and environment. Yet he must diagnose the trouble and prescribe a remedy, just like a medical doctor. He finds in this particular case that the tree is "suffering" from an internal disease in the sapwood. Ordinary "tree surgery" is not the remedy.

He takes a sample twig or branch to the tree research laboratory where a plant pathologist makes a culture of the fungus found in the sapwood. Sure enough, there it is, the particular species of fungus responsible for the toxins in the sapstream. The pathologist prescribes a "medicine" to counteract the poisons produced within the tree. This is a chemical solution injected into the sapstream through use of special instruments and a know-how technique.

In this method the solution is taken into the sapstream from containers hung around the trunk of the tree and connecting the sapwood with the solution in a bottle by means of a rubber hose. This connection must be made in such a manner that no air is permitted to leak into the sapstream and break the vacuum which draws the "medicine" into the tree.

Once the solution is inside the tree and no air has been permitted to enter the sapwood the upward pull and the root pressure will diffuse the medicating solution to all parts of the sapwood. This counteracts the toxin causing the trouble. This technique is known as chemotherapy, meaning treatment or healing through chemistry. Thus we see the similarity in technique and skill in treating tree diseases and human ailments. Experiments now in progress at tree research laboratories are being carried on to find solutions which may be applied in the soil and taken up by the roots in the normal function of absorbing nutrients from the soil. However, where the disease has made some progress the injection method is quicker and more effective.

Right now there are intensive experiments being carried on whereby it will be possible to apply solutions to the sapstream to control sucking insects, such as aphids, leaf-hoppers, mites and midges. These pests draw their food from the sap by merely inserting their beaks through the outside tissues of the leaf, stem or twig and sucking up the sap. If such sap contains toxins or poisons the elimination of the insect is simple. This method has a great future in the control of pests which now account for untold damage to trees.

There are also in progress experiments in the use of chemotherapeutic compounds for the control of certain tree diseases through the use of a foliar spray. It is entirely possible that such a "medicine" may soon be applied to a tree at the same time that an insecticide is sprayed on the foliage for control of the common tree insects. It is merely a matter of finding two materials which are compatible in a solution, one for control of the insects, the other for controlling the particular disease from which the tree suffers. Until recently it has been necessary to *prevent* a disease rather than cure it. Once a disease became established in a tree it was difficult to find a material that would "burn it out," without injuring healthy tissue. Now, however, we have chemicals which if

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Photo by the author

Using the injection method to treat a red maple stricken with bleeding canker

Program Committee Shapes Plans for Forest Congress

APPEARANCES by the President of the United States, the Secretaries of Agriculture and Interior and internationally-known resources experts are scheduled as highlights of the Fourth American Forest Congress called by The American Forestry Association October 29-31 in Washington, D. C. Following an agenda prepared by AFA's Higgins Lake, Michigan, conference in June, these leaders will keynote the nation's first "town meeting" of forestry since 1946. The public is invited.

This announcement was made by Dean Hardy L. Shirley, School of Forestry, State University of New York, and chairman of the Congress Program Committee, following the initial meeting of his group on July 13. In organizing the Congress, Dean Shirley said that representatives of organizations and individuals wishing to make statements at the Congress should make written request for Congress time to The American Forestry Association, 919 Seventeenth Street, N.W., Washington 6, D. C.

Considerable open time will be allowed at the Congress for impromptu statements from the floor, Dean Shirley said, but no invitations to speakers will be sent out prior to the meeting. Individuals wishing to make scheduled talks at the meeting will have until September 15 to make formal application for Congress time. Assignment of time to people making such requests will be made by the Program Committee on October 1, Dean Shirley said.

In planning the organization of the Congress, the Program Committee is giving full consideration to the Program for American Forestry proposed by experts in forestry and related fields who conferred at Higgins Lake, Michigan, in June. The Higgins Lake group made specific recommendations in five principle fields for the purpose of achieving three immediate goals. (See committee report starting on next page).

The five fields are Forest Landownership, Forest Land Management, Multiple Uses of Forest Lands, Education and Assistance to Forest Owners and Research. The three goals are: 1) to meet the essentials of forest protection; 2) to improve the national timber crop in volume and quality; 3) to obtain the maximum of economic and social services from forests by realistic application of the multiple use principle to their management. These recommendations will be reviewed by the Congress. The Board of Directors of the AFA will then adopt a revised Program for Forestry based on the Michigan and Washington meetings.

In following the Higgins Lake outline, Dean Shirley's committee has set up five major topics to be covered in the three-day session. The schedule is as follows: Thursday morning, October 29—Keynote address and introduction of distinguished guests; Thursday afternoon, Forest Land Management Goals; Friday morning, October 30, Multiple use and other land uses; Friday afternoon, Education and research; Saturday, October 31—Forest Landownership and a summary of the Congress.

In all sessions, the deliberations will open with a keynote address by a specialist in the field under discussion. A panel discussion will follow with three panelists addressing the subject under discussion from varying viewpoints. The remaining half of each session will be devoted to discussion of the recommendations in the field under discussion. Those who have been assigned time in advance, by request, will be heard first. The chair will then recognize comment from the floor.

These representative leaders will plan the Fourth Forest Congress. Left to right, Dr. Ira N. Gabrielson, Lowell Besley, Chairman Hardy L. Shirley, Leo V. Bodine, Earl W. Tinker and E. L. Demmon

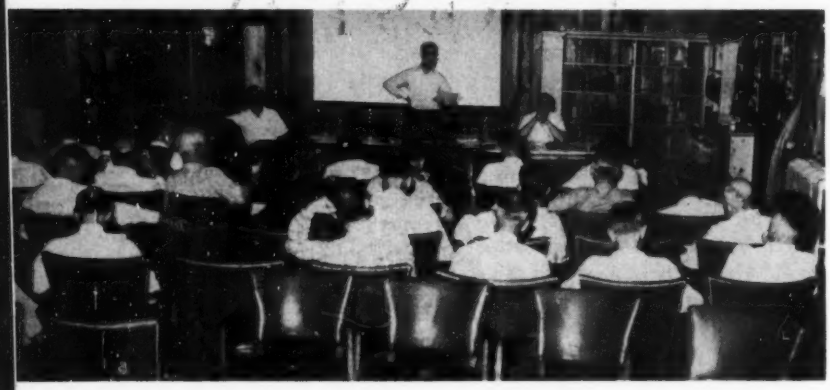
A PROPOSED PROGRAM FOR AMERICAN FORESTRY

A PROPOSED Program for American Forestry with recommendations in five principal fields will be presented for the consideration of the Fourth American Forest Congress October 29-31 in Washington, D. C. The program was worked out by leading conservationists meeting at Higgins Lake, Michigan, in June to revise AFA's 1947 30-point program in the light of changing conditions in forestry. Points in this proposed five-lane highway to future forestry progress are: 1) Forest Landownership; 2) Forest Land Management; 3) Multiple Use on all forest lands; 4) Education and Assistance to forest owners; 5) Research.

FOR directing the thinking of forestry toward five principal action channels in achieving a greater degree of cooperation in forestry, the delegates set up three immediate goals. These are: 1) To meet the essentials of forest protection; 2) To improve the national timber crop sufficient to balance the forest budget and establish a growth reserve; 3) To obtain the maximum of economic and social services from our forests by realistic application of the multiple-use principle to their management.

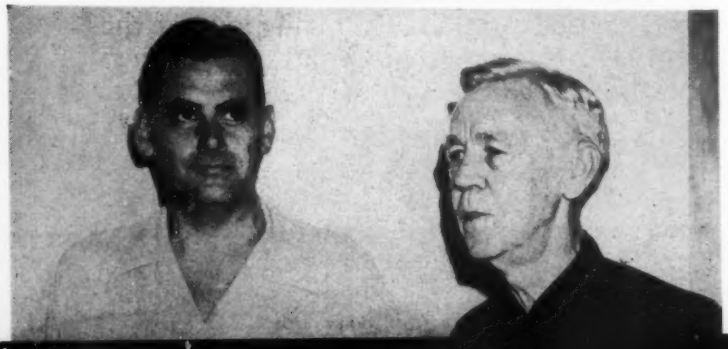
AS revised, the program adopted at Higgins Lake will serve as the agenda for the October Congress. At that time, representatives from forestry, related fields and the general public will be invited to engage in open discussion of the revised program and to offer additional recommendations. Following the Congress, the Board of Directors of the AFA will consider the Higgins Lake proposals and any new and revised proposals growing out of the Congress, in redrafting its 1947 program. This program will then be submitted to the membership of the AFA for a referendum vote.

Above, Chairman Dana, flanked by Mr. Fontanna (left) and Mr. Crafts, (right) calls for comment on report of public lands committee at Higgins Lake. Below, well-equipped classroom deep in northern Michigan's woodlands was setting for the Higgins Lake deliberations



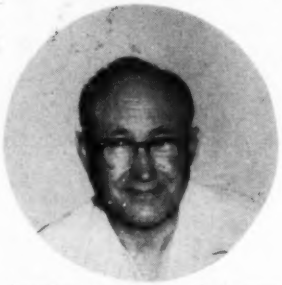
The report presented on these pages contains the findings of representatives of forestry and related fields who met at Higgins Lake, Michigan, in June to review and revise AFA's 1947 Program for American Forestry as needed to meet changed forestry and economic conditions during the period following World War II. The report will serve as the agenda for the Fourth American Forest Congress called by The American Forestry Association October 29-31 in Washington, D. C. At that time, representatives of conservation, civic and industrial organizations and the public will have an opportunity to comment on the modifications contained in this revised program. Following the Congress, the Board of Directors of the AFA will revise its Program for American Forestry based on the Higgins Lake report and any new or revised proposals growing out of the Congress. This program will then be submitted to the membership of the AFA for referendum.

AFA Executive Director-Forester Lowell Besley (left) and Director Emeritus Ovid Butler confer between committee meetings



COMMITTEE CHAIRMEN

W. B. Greeley, chairman, aims and objectives committee



Stanley Fontanna, chairman, committee on public lands

Dr. George A. Garratt, committee on research, education

DeWitt Nelson, chairman of the committee on protection

Corydon Wagner, chairman, committee on private lands

AMERICAN FORESTRY TODAY

DURING the past decade forestry in the United States, both public and private, has gained in accomplishment and stability. It has moved from the original exploitation of virgin resources toward the goal of permanent integration in the American economy and structure of land usage. These gains are due in part to progress under public and private policies. The cooperative and other programs of federal, state and private action have set in motion many resourceful local programs and undertakings, not only in forest protection and tree planting but in forest taxation, research, education, and the improvement of cutting practices. Other important advances have resulted from the improved economic status of wood, its markets and its production. Commercial forestry and wood utilization have made notable progress and are strengthening the economic base for timber cropping in many directions.

Much must still be done to conserve the forests of the United States and its territories and to improve their management. The goal of national policy is still the maximum contribution from forest lands to the American economy and to the health and spiritual well-being of its people. The importance of forests and forestry to national security and strength in world-wide relations has been reemphasized by international developments since World War II.

The more urgent and critical steps in American Forestry have been taken. The actions now necessary fall more into the category of long-range planning and adjustments, consolidating gains, filling gaps, and improving methods.

THREE IMPORTANT GOALS FOR FORESTRY

The situation existing today, based on experience during the last decade, points up three immediate goals for national policy. They are:

1. **To meet the essentials of forest protection.** This will require continued expansion, improvement and research on the control of forest fires with special emphasis on control by prevention. It is of equal importance that the control of forest insects and diseases be brought up to and maintained at a level of effectiveness comparable to the control of forest fires.

2. **To improve the national timber crop in volume and quality to a degree sufficient to wipe out all deficits and build up a reserve.** This can be accomplished practically and economically by utilizing more fully the productive capacity of our public and private forest lands.

3. **To obtain the maximum of economic and social services from our forests by realistic application of the principle of multiple use in their management.** This should include all forest uses and services but must give great weight to national requirements in conservation of water and control of erosion.

The multiple use of land involves many adjustments between conflicting uses and benefits. The grazing of watersheds on forest-producing lands by domestic livestock or the propagation of game animals often involve such conflicts. They can be resolved only by intelligent administration, which must be charged with responsibility for determining the priorities in use on any given area.

The Program

I—FOREST LANDOWNERSHIP

THE commercial forest lands of the United States, excluding Alaska, embrace an estimated total of 461 million acres. They are scattered throughout the nation. Based on U. S. Forest Service estimates (1945-1950), their ownership in point of acreage is as follows: Federal, 89 million acres;

state, country, and municipalities, 27 million acres; privately owned, 345 million acres. Small holdings greatly predominate in the overall ownership. Farm woodlands and other holdings of less than 5,000 acres represent 4,222,000 owners and a landownership of 261 million acres or more than one-half of the total forest acreage of the country.

To clarify the status, responsibility and action as respects the management and use of these lands for forestry purposes, we recommend that:

1—Early action be taken by the Congress to establish a joint Congressional Committee, consisting of members of the Senate and House Committees on Interior and Insular Affairs, the Senate Committee on Agriculture and Forestry and the House Committee on Agriculture, whose objectives would be:

a) To consider a desirable pattern for ownership of federal, state and private forest, range and other conservation lands.

b) To formulate policies to guide action of public agencies toward achieving this pattern.

c) To recommend to the Congress legislation needed to enable Federal agencies to implement these policies.

2—Early action by the governor of each state to appoint a committee to report on the conditions in his state as they may relate to items a), b), and c), above.

The American Forestry Association reaffirms its long-standing support of federal and state forests. As a general rule, it should be the national policy to leave in private ownership most forest land having reasonable prospect of effective management thereunder; and to extend state or federal holdings for timber production chiefly in land types not having such prospects or where there is need to complete existing public units. Future federal purchases or exchanges should not block the extension of state forests or of sustained-yield private management.

II—FOREST LAND MANAGEMENT

TO achieve the three goals of American Forestry as set forth above, accelerated action in the field of forest land management is called for along the lines and under policies here recommended:

A—FOREST PROTECTION

The protection of lands bearing forests or devoted to the growing of forests against destruction or depletion by uncontrolled fires, epidemics of tree-destroying insects, diseases and like pests is basic to long-range forest land management.

1—Protection Against Forest Fires

Continuous production of wild land crops of water, timber, forage, wildlife, and recreation is dependent upon adequate protection against fires. Current destruction of these resources by fire, in the face of greater public use of forests and advances in resource values, emphasizes the urgency of an expanded and intensified control effort that will strengthen existing fire control programs and at the same time bring all forest lands under effective organized protection.

In some areas inadequate regular appropriations for forest protection result in inefficient use of the protection dollar. Special efforts should be directed toward increasing prevention and pre-suppression activities in order to reduce number and size of fires and consequently high costs of their suppression.

Organized protection of state and private forest lands has been extended to 369 million acres, leaving 58 million acres without protection. The cost of protection has risen to $36 million, 75 percent of which is borne by the states and private owners. State expenditures are almost four times and private expenditures almost double those of 1944. Federal expenditures are nearly one and one-half times the 1944 outlay. In many cases, however, the increases in area protected have not carried corresponding increases in facilities and personnel.

The term "fire control" as used herein means activities to prevent forest fires as well as to control them after they start. In striving for effective control, past experience shows that *integrated cooperative effort* offers the most efficient and economical means for achieving desired levels of protection. We recommend:

Coordinated effort by all agencies to expand and intensify fire control programs including:

a) A joint public and private re-evaluation state-by-state, including Alaska, of control needs and finances.

b) Full recognition of protection responsibility by the cooperating federal, state and private groups.

c) Increased emphasis on hazard reduction in areas of heavy use and high fire frequency.

d) More citizen fire prevention organizations at the community level and complete integration of all fire prevention programs.

e) Competent technical assistance made avail-

able to those who use fire as a tool in land management.

f) Further development of interstate and inter-American agreements to foster mutual aid. Joint training and joint planning for forest fire prevention and control.

g) Analysis of fire causes at the local level so that prevention programs may be readily adapted to meet current situations effectively.

h) Intensification of research in forest fire control and coordination with military research in defense against fire from atomic and incendiary attack.

Changing conditions, increasing industrial activities and population pressures are constantly increasing fire hazards and risks, requiring intensification of prevention and control programs and modernization techniques and methods of protection. The risks involved and the values at stake emphasize the compelling need for the general public, the public agencies, the private owners and users to more completely integrate their skills and efforts in the common cause of fire control.

More needs to be learned about fire and weather behavior in relation to fire control; and about human response in relation to fire prevention appeals. Research in these fields together with the development of media, methods, techniques, and equipment is essential to keep abreast of growing resource demands and rising protection costs.

The military and other federal research organizations have made great strides in perfecting the use of fire as an offensive weapon. Similar research is required to perfect a defense against atomic and incendiary attack. These same defensive techniques and developments will contribute materially to the control of large and catastrophic forest fires.

2—The Control of Insects and Diseases

Inroads made by forest pests on the nation's timber supply today are imperiling the forest economy of many communities. In no field of forest activity is the need for immediate remedial action more acute. To combat effectively this menace, full use must be made of the cooperative principles of detection and control as laid down by the Forest Pest Control Act (Public Law 110) enacted in 1947. To make this act and related state laws more effective, we recommend:

Greater and better coordinated efforts by all appropriate agencies toward more effective control of destructive forest insects and diseases.

To this end, we recommend:

a) A review of past and current research programs in relation to accomplishments, pointing toward the expansion and coordination of research programs by federal, state and private groups. Special attention should be given to this study by the state pest control action councils.

b) Expansion and improvement of cooperative annual pest detection surveys, to obtain adequate coverage of forest lands subject to destructive outbreaks of insects and diseases.

c) That all forest states be prepared to cope with damaging pest epidemics by enacting enabling legislation to authorize and finance early action in cooperative control of forest insects and diseases.

d) Greater use of sanitation-salvage cuttings and other forest management practices known to be preventives against disastrous pest outbreaks.

e) That state and national pest control action councils review pest outbreaks, and provide leadership in obtaining cooperative control.

f) That emergency funds be allocated in federal and state appropriations to control new and unexpected outbreaks of insects and disease at their inception.

g) Increased emphasis on forest management as a tool for preventing disastrous insect and disease outbreaks.

Mounting losses from insects and diseases in all forest areas point to the urgent need for review of past research findings and control measures. The development through research of effective and economical control methods is the first basic requirement to cope with the present increasing pest problem. Such research needs to be strengthened in new work by federal, state and private forest organizations.

The Forest Pest Control Act passed by Congress in 1947 provides for cooperative programs of detection surveys and assistance in the control of forest pests. This long-needed legislation marks an important step forward in forest pest control. For its most effective operation there is need for similar state authorization, and appropriations to control outbreaks when small. Further, the difficulty of estimating control needs in advance makes it essential to have emergency funds available so that early action is possible. This will have the added advantage of minimizing losses and control costs.

3—Control of Destructive Rodents and Other Pests

To derive maximum benefit from intensified forest practices, it is often necessary to control destructive rodents and other pests, which defeat forestation efforts by destroying planted seeds or seedlings

and thereby make restocking of forest lands economically impractical. By discouraging natural or aerial restocking of harvested lands, and by drastically reducing the survival rate of planted seedlings or trees these pests continuously hamper the effectiveness of reforestation programs. To combat this menace, we recommend that:

Federal, state and private groups intensify research projects to develop and test measures for control of rodents and other pests and that results be made available for general use.

B—FOREST PRACTICES

With *protection,* the application on the ground of good forestry practices holds the master key with which to derive from forest lands their maximum and permanent contribution to American welfare. To accelerate progress already made, we recommend:

1—General Recommendations

a) Continued extension of more intensive forest management practices on all lands devoted to timber production. Such practices include:

(i) General use of thinnings, improvement cuttings, and other cultural practices to forestall mortality losses and increase growth and quality.

(ii) Universal use of harvesting methods that insure a satisfactory new crop of trees.

(iii) Progressive construction of access roads where economically justified into commercial timber areas to provide better protection, utilize over-ripe, dead and damaged trees and thereby free the residual stand for faster growth and greater productivity.

(iv) Extension of public timber sales and private timber harvesting into areas yet undeveloped so as to put all commercial forest lands into actual sustained production as rapidly as possible.

The greatest need for increased growth is in trees of sawtimber size. Present annual sawtimber growth has been (1945) estimated at 36 billion board feet. This growth rate ultimately can be more than doubled under intensive forest management if the best of currently known methods of stand improvement, harvesting and utilization are promptly and generally applied.

b) Promotion as a forest conservation measure, of the fullest possible use of the tree by encouraging improved harvesting and processing techniques and complete manufacture and merchandising of all usable wood material.

c) Encouragement of consumer demand for forest products so as to maintain markets and to develop new outlets for all usable wood material as a fundamental inducement to the greater application of good forest management practices on private and public lands.

d) That all classes of forest owners be encouraged by education and demonstration to participate in this advance in American forestry. But it rests with the administrators of public and private forests and with industries dependent on abundant wood supplies to lead the way.

2—Responsibilities of Public Agencies

Public agencies responsible for timber land administration should:

a) Provide adequate forest protection as recommended in Section A and should maintain timber inventories for each management unit of sufficient detail to provide a basis for management plans and timber sales.

b) Prepare management plans to provide for orderly harvesting of the timber crop on a sustained-yield basis at a high level of productivity and quality.

c) Provide for construction of access roads to permit utilization of timber, not now accessible, either to meet an emergency or to carry out management plans.

d) Accelerate the preparation of timber for sale—in accordance with the management plan—to meet market demands. This involves advertising the timber for bids, preparation of sales contracts, designating timber to be cut, and supervision of the sales.

e) Provide for adequate regeneration of forest lands through natural regeneration encouraged by correct forest practices or by planting or seeding as needed to restore land to productivity within a reasonable time.

f) Take prompt action in emergencies created by insect and disease epidemics, major fires, or large-scale blowdowns, to salvage usable timber in order to prevent waste and to reduce fire hazards, following which the land should be restored to productivity.

3—Control of Destructive Practices

The development of state policies, methods or laws by the people of each state to avoid unnecessary destruction of growing stock and young growth and to assure practices that will maintain continuous production on forest lands.

Needed controls should be developed state-by-state as local conditions and forest practices require. Painstaking discussion and explanation of proposed controls with the forest owners affected are essential in initiating such measures. The assistance to forest owners recommended in this program will help to promote compliance.

C—FOREST PLANTING

It is estimated that there are 65 million acres of poorly stocked and deforested areas, where artificial

reforestation is needed or economically justified. A large percentage of these lands lies close to areas of largest populations and forest products demands. The highest economic use of such areas is timber growing; and planting and direct seeding are means of getting them promptly into production. We recommend:

1—Continued expansion of tree planting and seeding activities sufficient to restore non-restocking and poorly stocked forest land to productivity within a reasonable time or to introduce more desirable species. Pending the determination of acreage in need of reforestation, a planting objective of two million acres a year is believed reasonable.

2—That stock distributed from public nurseries be limited to plantings for forest products, wildlife food and cover, watersheds, erosion control, and windbreaks or shelterbelts.

In 1951, 450 million trees were distributed from federal, state and industrial forest nurseries. The current annual planting and seeding is approximately 500,000 acres, about 80 percent of which is on private lands. Increased planting activities are important on publicly-owned lands and on industrial lands, where necessary to maintain full production of desirable species, or for watershed protection and shelterbelts. Reforestation on the scale recommended will create new wealth for the nation and hasten balancing of the forest budget.

While there have been notable increases in acreages reforested annually during the past three years, there still are serious shortages of seeds and planting stock in most regions. Consideration should be given to improvement in quality and quantity of seed supplies and planting stock.

III—MULTIPLE-USE POLICIES

IN line with the policy of furnishing the greatest good to the greatest number in the long run, forest areas provide services and products in addition to timber. Conflicts arise and the highest use must be considered paramount in any given area. Under the principle of multiple use, the wise administrator will establish the required priorities and plans to enable the area under his control to contribute the maximum in total products and services.

A—THE CONSERVATION OF WATER

The conservation of water has become a problem of nation-wide importance and concern. Great sums are being expended yearly by public and private agencies to protect watershed areas or to prevent soil erosion caused by uncontrolled runoff of water. The acuteness of the situation is emphasized by the increasing numbers of urban and rural areas seriously threatened by shortages of water for domestic, industrial or agricultural uses. We recommend:

1—Recognition of water conservation as of paramount importance in the management of many public forest and range lands.

Public agencies should provide for:

a) Management of timber and grazing resources to improve the quantity, quality and regularity of water flow needed for domestic, agricultural, industrial and recreational use, and to prevent and eliminate water pollution.

b) Coordination of planning and application of watershed-management and flood-prevention measures on upstream forest, agricultural, and range lands with the construction of downstream flood control and water power development projects.

c) Provision in federal dam and water reservoir projects for consideration of their impact on public and other lands and for replacement to the extent practical of impaired facilities and services.

d) Acquisition of certain forest and range lands where watershed protection and management is of very high priority.

The Flood Control Act of 1936 and subsequent amendments passed by Congress initiated a national policy for the study and improvement of critical upstream watersheds. Reports on some 60 such watersheds have been submitted to Congress which has approved 11 of them and has authorized the recommendations for maintaining forest cover and other water conservation works. This upstream watershed program is under the direction of the Secretary of Agriculture and is now being implemented through the Soil Conservation Service and the Forest Service. The Corps of Army Engineers and the Reclamation Service are charged with planning downstream storage and diversion structures.

The management of forest lands plays an important part in the success of this program. Unofficial estimates are that at least three-fourths of the total forest area, commercial and noncommercial, are of critical importance for flood and sediment control and for surface and underground water conservation.

It is encouraging to note that in addition to the public agencies, numerous organizations, privately

sponsored, financed and managed, have become active in the field of water conservation, flood control and prevention of erosion.

B—FOREST RECREATION

The expanding population of the country, coupled with shorter work hours and weeks and with a growing appreciation of the out-of-doors, has created a tremendous demand for forest recreation and has taxed the existing areas and facilities. We recommend:

1) **Full recognition of the human values inherent in public forest lands in order to meet the recreational, cultural, and spiritual needs of our people.**
2) **Provision for the preservation of special areas such as national parks and wilderness areas from any use that will interfere with the complete satisfaction of these needs.**
3) **Development of adequate services and facilities where required to permit safe use and full enjoyment of public lands by the people.**

An essential phase of forest land management is the reservation from conflicting use of areas which render higher public services through recreation and inspiration. Examples of this type of management are existing state and national parks, national monuments, wilderness areas and wildlife refuges, created to preserve natural, scientific, or historical features for the enjoyment, education and inspiration of all the people.

C—GRAZING ON PUBLIC LANDS

To administer effectively public range lands, we recommend that:

1) **Numbers of livestock be brought into balance with sustaining grazing capacity of the range.**
2) **Sustained-range productivity be improved by reseeding, other range improvement measures and better management, in full consideration of priority needs of water, timber and other uses of certain public lands used for grazing.**
3) **Permits to graze livestock on public lands be considered a privilege and not a legal right.**

D—MINING ON PUBLIC LANDS

Efficient management of many millions of acres of federal public lands, including the discovery and development of new and known mineral resources, is in the public interest. The legitimate miner and prospector should be encouraged to carry on such work. However, widespread abuses under the existing mining laws—namely efforts by individuals to use the mining laws as a means of acquiring government lands for other than mining purposes—should be stopped. We, therefore, recommend that:

1—Congress revise the federal mining laws to prevent their abuse by claimants or patentees who use their claims to tie up more valuable timber or other surface resources than they legitimately need to develop the minerals.

E—WILDLIFE MANAGEMENT

Forest land provides the habitat for most of the important wildlife species. In the formulation of forest management plans, wildlife management should be accorded a definite place, and where desirable, forestry practices should be modified in the wildlife interest. We recommend:

1) **Integration of wildlife management practices with those of forestry on forest lands.**
2) **Development of big game management programs in cooperation with state game agencies for the purpose of maintaining a balance between big game populations and domestic livestock in relation to available food supplies.**
3) **That, to the extent practicable, private forest landowners should work with appropriate state agencies and local authorities to further develop reasonable use of private forest lands for hunting and fishing which would not be detrimental to the major purpose of management, and to protection of the resource from fire and to other security measures. State and local authorities should recognize and carry out their responsibilities to protect the rights of the private landowners in this regard.**

Overpopulation in certain areas of such animals as deer and elk has caused destruction of the forage including important tree species, and starvation in the herd. To achieve a balance between population and food supplies in these areas, and to prevent the occurrence of similar conditions in other areas, it is necessary that herd control be instituted under the authority of state legislation. Likewise, the competition between deer and elk and domestic livestock for the available forage must be taken into account wherever grazing is permitted.

IV — EDUCATION AND ASSISTANCE TO FOREST OWNERS

A—ASSISTANCE

THREE-FOURTHS of all commercial forest land in the country is in private ownership. It is distributed among more than 4,000,000 owners in tracts ranging from small farm woodlands to large corporate holdings. The great majority of these owners, particularly in the small-ownership class, are uninformed as to best methods and techniques

of managing their woodland for continuous and profitable growing of timber.

Here is probably the greatest field in which to increase forest production in the United States. The means is a much more extensive and aggressive program of providing education and on-the-ground assistance to private owners. The problem is especially acute in respect to small owners who hold over 75 percent of all private forest land in the country.

Considerable progress in this field has been made in the last decade by public and private agencies. The interest of forest industries in assured supplies of raw material has brought them into this field in force. Many industrially-employed foresters are now engaged in woodlot examinations, timber marking and the free distribution of planting stock. This has greatly supplemented the work of a growing number of consultant foresters and approximately 400 foresters employed by the public services. This three-pronged drive to educate and assist owners in better management of timberland has demonstrated what can be done in this field of utmost urgency. We recommend:

1—The continued expansion and improvement by all agencies, public and private, of nation-wide programs of education and technical assistance to the owners of farm woodlands and other small forest properties, and of advice and assistance to the small conversion plants in wood-using industries. This includes:

a) As a basis for federal policy and financial cooperation in the above fields, broad educational and group activities should be conducted by state extension services: action programs and individual service on the ground should be directed by the state departments of forestry under federal and state policies clearly defining the limits of free public aid.

b) Forest industries which buy logs or pulpwood from woodland owners or contractors should, as a procurement policy, instruct their suppliers in good forest practice.

c) Coordination at the state level of all agencies working in these fields is of utmost importance.

d) Expansion of forest educational and extension programs in agricultural areas is needed to reduce woodland depletion by livestock where land is primarily adapted to forest growth.

e) Emphasis should be given to the fact that the woodlot is an important resource to the farm and should be so recognized in farm planning. Forestry should be an integrated part of the activities of soil conservation districts.

B—FOREST TAXATION

If the efforts of a greatly-expanded field staff are to prove successful forest taxation, inheritance and estate tax laws and forest credit and insurance must all be looked at realistically in terms of how to best promote intensified forestry practices on the ground.

The general property tax often imposes an inequitable burden on properties devoted to the continuous production of forest crops. Usually such burdens are the result of improper assessments or unreasonable tax rates, or both. Special taxes, for such purposes as construction of dikes, drainage ditches and other improvements, may have a similar deterrent effect. Wherever burdensome conditions exist, the general property tax should be modified in its application to forest properties, or superseded by a more suitable system of forest taxation.

Present requirements for paying federal estate and state inheritance taxes are definite drawbacks to sustained-yield operations. Times of payment should permit accumulating necessary funds without forcing liquidation of forest properties by the necessity of meeting the tax in one payment or paying substantial interest on deferred installments. We recommend:

1—State action where necessary to relieve forest owners from disproportionate burdens now imposed on forest lands by the general property tax and other state or local taxes.

2—Amendment of inheritance and estate tax laws to permit the payment of such taxes on forest properties in installments over a reasonable period of years.

C—FOREST CREDIT AND INSURANCE

Industrial and other owners of large forest properties usually are able to find sources of financing their timber-growing operations. Owners of smaller forest properties may have no similar sources and their lands are without credit for management and improvement. Provision should be made for meeting the credit needs of owners undertaking the growing of forest crops as a business and in order to assist the flow of capital investment into forestry. Regulations governing the lending practices of the national banks should be modified to permit the acceptance of land under management for continuous production of forest crops as collateral security.

Forest fire loss experience is favorable to application of the insurance principle in a large part of the country. Such application is needed as a practical business aid to full production. We recommend:

1—That forest owners consider formation of a mutual forest fire insurance company or companies unless the established fire insurance organizations extend their operations to include forest properties without undue delay.

2—Adequate credit and insurance facilities to encourage intensive management of woodlands and continuous production of timber.

D—EDUCATION (PROFESSIONAL)

To advance forestry in proportion to its ever-increasing importance to the nation, a sufficient number of thoroughly-trained forestry technicians and specialists must be added to the ranks of the profession each year. This calls for strong professional institutions which will turn out foresters well grounded in fundamentals, as well as specialists in the various fields of research, including subjects such as forest genetics and watershed management which are not now adequately covered. There is also need for more sub-professional training at the ranger school level, as well as practical farm forestry courses for students at agricultural colleges. Technical conferences and exchange of information leading to professional improvement should be encouraged, including short courses in forest soils, hydrology, photogrammetry and like subjects. We recommend:

1—Strengthening of professional forestry training in vital fields, not now adequately covered: increasing sub-professional training on regional basis and practical farm forestry instruction at agricultural colleges: expansion of continuation training for practicing foresters through technical conferences and short courses.

2—That agricultural colleges offer elementary courses giving prospective farmers, county agents, and other agricultural workers an understanding of the importance of woodlands in farm economy and some knowledge of their management. The participation of vocational agricultural teachers in instruction of farm forest management should be encouraged.

3—Constant attention be given to ways and means of making federal and state service in forestry agencies an attractive career, including reasonable security for competent technical personnel.

E—EDUCATION (PUBLIC)

Education is a primary means by which forestry programs and practices can be continuously improved. The use of movies, radio and television has broadened the field of forestry education, both for young people and adults. Teacher training through workshops and other means and work with organized youth groups is particularly important with emphasis on the essentiality of our forests in everyday life. Such programs should be worked out to fit local situations and conditions and require strong and well-qualified leadership. To facilitate this work, cooperative action should be initiated to designate clearing houses at the regional or state level for dissemination of appropriate films and radio and television scripts for use in public education and forestry. Additional methods of promoting a better understanding of the importance of forests to the general public can be attained through a well-informed press, significant articles in periodicals read by large numbers of people, and well-planned advertising campaigns that have a strong impact on the general public. The importance of assembling, preserving and publishing historical material is recognized as being of major importance and should be stressed. We, therefore, recommend:

1—Intensification of public education in forestry matters through increased use of audio-visual methods, teacher-training workshops, suitable published material; establishment of appropriate clearing houses for dissemination of public education materials.

V—FOREST RESEARCH AND SURVEYS

RESEARCH is a constant essential of forestry progress in that it supplies the knowledge which leads to better methods of growing, harvesting and utilizing forest products. Forest survey reports the conditions on the ground and points up those needing correction or improvement. Used together, research and survey, objectively directed and integrated, can provide powerful stimulation and effective assistance in attaining the goal set forth in this program.

A—FOREST RESEARCH

More research is needed in most phases of forestry but special efforts are urgently required in certain important fields which have hitherto received seriously inadequate investigation. These are: watershed management, protection against insects and diseases, forest genetics, utilization of little-used species, economic aspects of forest management, forest products marketing and land-use conversion.

A need exists for improved cooperation among participating groups and individuals. More advisory committees—composed of research specialists and those using the findings of research—should be set up without delay. The time lag between the acquisition of facts in the laboratory and the application of these facts, in the forests, constitute a major roadblock.

In view of this need for an accelerated-action program in this major field, we recommend:

1—Expansion of forest research to emphasize certain fields not now adequately covered.

2—Recognition of the primary, but not exclusive,

responsibility of public agencies and educational institutions for fundamental research, industrial organizations for applied research.

3—Improved coordination of research through advisory committees or other suitable means.

4—Speed-up of publication and application of research findings.

5—Establishment of permanent study areas within virgin forest associations and other appropriate ecological areas in order to provide a more comprehensive knowledge of natural developments.

Annual expenditures for research by the Forest Service have increased from $2,000,000 to $5,400,000 since 1940. Expenditures by industries and other agencies have advanced from $6,000,000 to $20,000,000 with private research making notable progress in the field of wood use, especially wood chemistry. Cooperative research programs in which federal, state and private agencies participate have increased in the last decade.

Nevertheless, a major job remains to be done. The responsibilities for that job should be shared by public agencies and institutions, business and industry, and private institutions and organizations. The responsibility for developing the fundamental aspects of the needed research should be borne by public agencies and educational institutions. The forest industries have a responsibility, in turn, to concentrate on the applied aspects of research in production and utilization and to provide more of the necessary pilot-plant development for promising fundamental research leads. Industry should also sponsor more research in educational institutions.

B—FOREST SURVEYS

Basic information needed for sound planning of forestry programs and for a public understanding of the place of forests in the general economy can best be obtained through periodic surveys of the nation's forests. About two-thirds of the commercial forest land has been covered by official surveys and about one-fourth has been resurveyed. The estimates of 1952 show 1617 billion board feet of standing sawtimber; also 470 billion cubic feet in all trees five inches and over in diameter. The current annual drain (estimated in 1945) including 3.4 percent loss from forest fires and 7.5 percent loss from insects, disease and wind, is nearly replaced by growth in the cubic-foot classification: but exceeds growth in the ratio three to two in the board feet tabulation. The aggregate productive capacity of our forest lands is at least double their present growth.

In view of the stake of local industries and the states in the forest survey, their greater participation in planning and financing the work should be encouraged. The survey should be expanded to include Alaska. These surveys should provide information on timber needs, volumes, growth rates, depletion due to cutting, insects, diseases, and soil classification. They should be so designed as to provide information on a county basis, where such detail is made possible by the cooperation of state, local governmental units and industry. A review of the nation's forestry situation at ten-year intervals is desirable. There is need for drastic acceleration of the survey rate to achieve this goal. Conducted by the research branch of the Forest Service, new and improved techniques for making forest surveys are giving greater accuracy at less cost. We, therefore, recommend:

1—Continuation and acceleration of the forest survey and its extension to Alaska: greater participation by states and local industries: review of the nation's forestry situation at ten-year intervals: development of new and improved survey techniques for greater accuracy and lower cost.

A PROGRAM OF ACTION

THE program presented is essentially a statement of policies. They must be put into effect by public, legislative and administrative actions and by the supporting activities of industries, civic-minded organizations and public-spirited men and women in all fields of American life.

HIGGINS LAKE RESOLUTION

As a group the Higgins Lake Conference offers its support to The American Forestry Association in publicizing and implementing this program.

THEREFORE, BE IT RESOLVED THAT:

THE AMERICAN FORESTRY ASSOCIATION ACCEPT RESPONSIBILITY FOR PUBLICIZING AND OBTAINING GENERAL ACCEPTANCE OF THIS PROGRAM AND FOR ADVANCING ITS RECOMMENDATIONS NATION-WIDE BY STATE AND NATIONAL ACTIONS AS THEY APPEAR PRACTICABLE.

What They Said About Higgins Lake

Lloyd E. Partain, Curtis Publishing Company—"A fine meeting. The agenda prepared by the second Higgins Lake Conference will make an excellent springboard for the Fourth American Forest Congress October 29-31 in Washington. The AFA will pack them in."

F. J. Fjelsted, manager, Weber Basin Water Conservancy District, Ogden, Utah—". . . the most active, productive conference I have ever attended."

Dr. Wilson Compton, AFA director, Herndon, Virginia—". . . One of the most orderly, hopeful forestry meetings I've attended in 40 years."

John F. Shanklin, chief, Land Use Management, Department of the Interior—"An excellent meeting; at long last The American Forestry Association has recognized Alaska."

Ernest L. Kolbe, forester, Western Pine Association—"Dean Dana's control of this meeting was masterful—right on schedule throughout."

Charles H. Sage, vice president, Kimberly-Clark Corporation—"The group did an unusually thorough job in connection with committee work."

John B. Woods, Salem, Oregon—"The second Higgins Lake Conference was fully as effective and efficient as the first; in some ways more so. Last time we were pioneering and much time was spent in analysis and evaluation. However, in the main, it was the same type of meeting as before—with the same devoted people giving it the best they had. This meeting developed a somewhat broader concept by giving more attention to multiple use."

Tom Wallace, editor-emeritus, *Louisville Times*—"Once again The American Forestry Association has managed to bring together a hardworking, conscientious and effective group that has laid an excellent groundwork for the Forest Congress in October."

Dr. George A. Garratt, School of Forestry, Yale University—". . . An outstanding meeting."

A. Z. Nelson, National Lumber Manufacturers Association—". . . Effective. . . . the Association might have included representatives of mining and grazing."

B. E. Crihfield, Council of State Governments—". . . A hard-working group."

A. J. Robinson, Great Northern Railway Company—". . . Sound. . . . Strictly high caliber."

Peter E. Terzick, editor, *The Carpenter*—"The public expects the best from The American Forestry Association. It won't be disappointed in this meeting."

Edward C. Crafts and W. S. Swingler, U. S. Forest Service—"We believe that a worthwhile program has been developed and it is one upon which we are in general agreement. We do, however, have one major qualification and that concerns the statement on 'State Regulatory Laws.' There appears to be no question that the 1953 statement is considerably weaker than the one approved on this subject at your 1946 Congress. In our opinion, this is a mistake for past experience with state regulatory laws indicates that such laws are an effective tool in obtaining better forest practices, and on their record deserve a wider trial than they have heretofore been given. We would like to see the 1953 statement worded at least as strongly as the 1946 statement."

NEW, Power-Packed AND READY TO GO!

NEW U-1091 natural gas power unit develops 187 net h.p. at 1400 rated r.p.m.; 200 net h.p. at 1600 max. r.p.m.; maximum torque, 820 lbs. ft. @ 800 r.p.m.

NEW U-450—102 net horsepower at 1800 rated r.p.m.; 110 @ 2200 r.p.m.; maximum torque, 324 lbs. ft. @ 1200 r.p.m.

NEW U-406—91 net horsepower at 1800 rated r.p.m.; 98 @ 2200 r.p.m.; maximum torque, 279 lbs. ft. @ 1200 r.p.m.

NEW U-372—83 net horsepower at 1800 rated r.p.m.; 91.5 @ 2200 r.p.m.; maximum torque, 263 lbs. ft. @ 1200 r.p.m.

NEW U-269—62 net horsepower at 1800 rated r.p.m.; 72 @ 2400 r.p.m.; maximum torque, 191 lbs. ft. @ 1200 r.p.m.

NEW U-240—55 net horsepower at 1800 rated r.p.m.; 64 @ 2400 r.p.m.; maximum torque, 168 lbs. ft. @ 1200 r.p.m.

NEW U-220—50.5 net horsepower at 1800 rated r.p.m; 62 @ 2400 r.p.m.; maximum torque, 151 lbs. ft. @ 1200 r.p.m.

IH Announces Seven New International Engines

Seven new six-cylinder, carbureted, valve-in-head engines have been added to the International line, which now includes 18 models—diesel, gasoline or gas—ranging from 16.5 to 200 net horsepower.

These new models are the result of more than 45 years of IH engineering and manufacturing experience building a complete line of heavy duty engines for tractors, trucks, construction and oil field equipment and individual power unit applications.

These new units have the durability, flexibility and economy to meet your requirements for lower cost performance. The unmatched network of IH district offices, parts depots, distributors and dealers puts complete service facilities practically at your door.

If you are an individual user of engines, it will pay you to see your nearest International Industrial Distributor or Power Unit Dealer for more complete information. If you are a manufacturer, your nearest IH district office will be glad to help you engineer these engines into the equipment you are building.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

POWER THAT PAYS

INTERNATIONAL HARVESTER

INTERNATIONAL

Plan To Attend

THE FOURTH AMERICAN FOREST CONGRESS

OCTOBER 29, 30, 31, 1953

STATLER HOTEL

WASHINGTON, D. C.

Conservationists from all over America will convene in Washington on October 29, 30, 31 to re-examine all of the aspects of forest management and protection on public and private lands in the United States.

The occasion will be the FOURTH AMERICAN FOREST CONGRESS. Previous Congresses were held in 1882, 1905 and 1946. This Congress will take the place of The American Forestry Association's 1953 Convention.

Members and friends of the Association are cordially invited to attend. It is anticipated that approximately 1,000 Conservation leaders from all parts of the United States will attend this important three-day gathering.

Headquarters for the Congress will be at the Statler Hotel, where the Annual Banquet of The American Forestry Association will be held on the night of October 30.

You are urged to make your hotel reservations as promptly as possible. A list of additional Washington hotels is given below and in sending your reservation direct to the hotel please state that your attendance is in connection with the FOURTH AMERICAN FOREST CONGRESS.

HOTEL RATES FOR THE FOURTH AMERICAN FOREST CONGRESS

	Single	Double	Double—Twin Beds
STATLER HOTEL, 16th and K Streets, N. W.	$6.50-11.00	$10.00-14.50	$11.00-19.50
AMBASSADOR HOTEL, 14th and K Streets, N. W.	6.00- 8.00	8.50-12.00	10.50-12.50
ANNAPOLIS HOTEL, 11th and H Streets, N. W.	7.00- 8.50	9.00-10.50	9.50-11.00
BLACKSTONE HOTEL, 1016 17th Street, N. W.	4.50- 7.50	6.50- 9.50	7.00-10.00
HAMILTON HOTEL, 14th and K Streets, N. W.	6.00- 8.00	8.50-11.50	9.50-11.50
HAY ADAMS HOTEL, 16th and H Streets, N. W.	10.00-	13.00-14.00	13.00-14.00
LAFAYETTE HOTEL, 16th and Eye Streets, N. W.	7.00- 8.00	10.00-11.50	10.00-11.50
MAYFLOWER HOTEL, Conn. Avenue and DeSales Street	6.50-15.50	12.50-18.50	13.00-19.50
SHERATON CARLTON HOTEL, 16th & K Streets, N. W.	11 00-14.00	14.00-15.00	14.00-15.00

Students Seek Help To Save Virgin Forest

Unless a miracle occurs between now and September 1, it appears certain that one of the few remaining virgin forests in the East is slated for the lumber yards. Mettler's Woods —a 136-acre tract near East Millstone, New Jersey, is up for sale. The 136-acre tract has been almost untouched by man since 1690 and is a true "forest primeval."

So far, the $75,000 offered by a lumber company is more than students and professors at nearby Rutgers University have been able to raise. No hostility is involved—merely the inexorable law of economics. So far, lumber interests have outbid students. In other words, planks are more marketable than papers on plant growth and soil control.

Nevertheless, Mettler's Woods has almost priceless value as a laboratory. Its timber tells the story of the full cycle of growth. Its topsoil is more than three feet thick.

Interested people are trying to save this woods. All communications can be addressed to William H. Cole, Rutgers University, New Brunswick, New Jersey.

Besley Urges

(*From page 4*)

study of H.R. 5358 would indicate that it can accomplish this desired purpose whereas a similar study of H.R. 4938 introduced by Congressman Wesley D'Ewart is entirely inadequate. Unlike the Hope Bill, D'Ewart's measure does not insist on proper cutting practices on claims or provide for orderly disposal of timber.

In an effort to correct what it regarded as an unwholesome situation on national forests, American Forests in 1952 published a series of case histories prepared by Cleveland van Dresser. Reaction by the public was prompt. As a result, Mr. van Dresser resumed his field work later in the year. The result was three more articles published in the early months of 1953. These articles were illustrated by Gib Crockett, one of the nation's outstanding political cartoonists. The series was widely distributed and reprinted in a number of newspapers and periodicals.

PRODUCTION — 1,000,000 FT.

REPAIRS — 1 Switch, 1 Spark Plug

MORRIS, N. Y.

Winston Harris cuts hard maple, beech, hemlock and pine all the time with his Homelite Chain Saw. He says that a Homelite always starts instantly, is faster in cutting and handles better. What's more, he claims that there is no comparison in figuring costs of operating or repairs with other make saws he has used. With his Homelite he has cut 1,000,000 ft. with 1 switch and 1 spark plug his only repairs other than worn out chains

It Pays to Get a

HOMELITE

One Man

CHAIN SAW

When you're cutting wood all the time you need a saw that's on the job all the time. Time out for repairs runs up your operating costs and runs down your production and profits.

That's why it pays to pay more for a Homelite and get more for your money. Not only faster and easier to handle on every type cut, a Homelite is more rugged, more dependable, less troublesome on the job. Built and backed by a company that is famous for its lightweight, high powered gasoline-engine-driven units, a Homelite is the best saw you could possibly buy — the best investment you could possibly make.

Manufacturers of Homelite Carryable Pumps • Generators Blowers • Chain Saws

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Quebec.

PERFORMANCE • DEPENDABILITY • SERVICE

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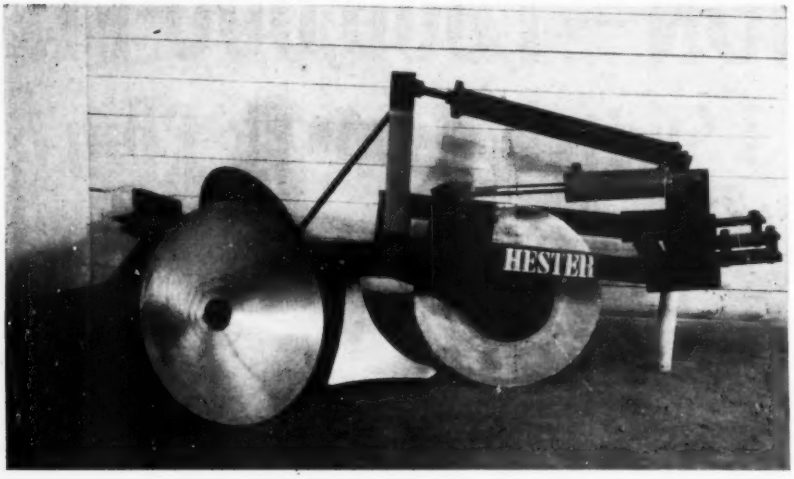


New HESTER Fire-Line Plow

At Work! See how the discs throw dirt! Cutting width approximately 42". Effective line width approximately 7'.

FAST, RUGGED, MANEUVERABLE!

The picture shows why the Hester #1000 Plow does the job better. The 24" rolling coulter is big enough to penetrate the surface trash without dragging or riding out. This permits the nodular iron middlebuster to open the furrow and the discs to throw dirt. The wings at the rear prevent dirt from falling back into the line, and a skid plate between the discs prevents the plow from "hogging" down.

The plow is mounted to the tractor swinging drawbar which allows it to follow in sharp curves. A unique free-floating hydraulic lift lets the plow ride over logs and rocks, provides even depth of cut over rough terrain, yet makes it easy to lift plow clear of ground for transporting, loading and to get in and out of tight corners. Timken bearing equipped throughout. At present for International TD6 only. Other models forthcoming.

For complete information about

HESTER Fire-Line Plows

Write the Hester Plow Company, Inc., Jacksonville 6, Fla.

MEMBERSHIP APPLICATION

THE AMERICAN FORESTRY ASSOCIATION
919 17TH STREET, N. W., WASHINGTON 6, D. C.

Please enroll me as a Member of The American Forestry Association. Enclosed find $5.00 to cover dues for one year, (Including subscription to AMERICAN FORESTS Magazine). My name and address is:

Name .....

Street .....

City and State .....

8-53

Played With Fire

(*From page* 22)

two women, one of them Mrs. Robert Powers, whose ranger husband was that night to be one of the 15 to die. (Twenty children lost their fathers in the fire.)

Back to Elk Creek Pattan came, this time on a lumber access road, and then on to Willows, headquarters of the Mendocino National Forest.

Pattan had cooked while in the Navy and he had been a cook on several other forest fires. Within a few minutes after reaching town, he applied at the Forest Service warehouse for a job but was told there was nothing for him, since it appeared the blaze would soon be under control. However, he was back again late that night and this time he was hired.

The fire started about 2:30 p.m. and when Forest Supervisor Leon Thomas finally reached Willows later in the afternoon from a trip to the other side of the coast range, the flames were mostly in chamiso, dry grass and digger pine.

Controls had been set up on three sides, backfires were being set, the wind was dying down and more than 100 men were on the fire lines. Among them were more than 30 from the New Tribes Mission, a group supported by about ten fundamentalist Protestant churches to train men and women for service in remote jungles.

The group has its boot camp at Fouts Springs on land leased from the Forest Service and its members have always eagerly accepted fire-fighting duty.

When Supervisor Thomas reached Powderhouse Point, he found flames along the left-hand side of the road but none in the canyon on the right. Later, however, a few spot fires jumped the lines, one of these was about 300 feet directly down the ridge from where headquarters had been set up.

About 9 p.m. James Lafferty, a Forest Service employee, sent four men through the heavy brush, which in places was waist-high, to corral this blaze. Later he added 20 more and put them in charge of Powers, a 27-year-old college graduate who had recently been transferred from the Plumas forest. All 24 except Powers were from the mission camp.

(*Turn to page* 48)

DOW

CHEMICAL BRUSH CONTROL IMPROVES LOGGING ROADS

DOW brush killers solve problem of low visibility along forest roadways, switchbacks, access roads and communication lines

Chemical spraying gives better results than mechanical methods in keeping brush back to give full road width and adequate visibility. Esteron® Brush Killer and Esteron® 245 do a good job of controlling brush and trees along switchback roads, logging roads, access roads and communication lines—and lessen the need for slashing and bulldozing.

Esteron Brush Killer and Esteron 245 have proved their worth in year-around basal bark spraying and frill application to control weed trees. Esteron 245 is especially effective on hardwoods. Esteron Brush Killer is a mixture of low-volatility propylene glycol butyl ether esters of both 2,4-D and 2,4,5-T—while Esteron 245 contains the same type esters of 2,4,5-T only. Both products are also useful for spraying cut stumps and stubs to prevent resprouting.

Lumber company superintendents and foresters are invited to write for detailed information on the use of Dow's hard-hitting brush killers for easier maintenance of forest roadways and for timber stand improvement. THE DOW CHEMICAL COMPANY, *Agricultural Chemical Department*, Midland, Michigan.

you can depend on DOW AGRICULTURAL CHEMICALS

DOW

. . . *In New York*

By EARL D. BROCKWAY and FRED W. OETTINGER

THIS story had its beginning approximately 90 years ago with the abandonment of what was then an open field of five acres near the community of Clove, not far from the Massachusetts line in Dutchess County, New York. The reason for abandonment was quite obviously the presence of rock outcroppings and uneven terrain, characteristics which do not lend themselves to the practice of efficient farming. Hemlock and white pine rapidly seeded in the area as is evidenced today by only a five-year range in the ages of the trees, which are closely spaced and 70-80 feet tall.

This woodlot was acquired by Glen Ford McKinney in the early 1900s as a part of a 1000-acre tract of land which he named "Tymor Farm." The farm is presently owned and operated by his daughter and son-in-law, Mr. and Mrs. Ralph Connor, whose current management policy is directed toward the production of high quality, purebred Jersey cattle.

Not long ago Connor became interested in the construction of a very modern type one-story frame barn with the proposed dimensions of 300′ x 30′. The purpose of this building would be to decrease labor costs in housing stock and to provide a training area for young heifers before their first lactation period. Since Tymor Farm is a cooperator under the New York Forest Practice Act, Connor contacted the district forester in Poughkeepsie for information on the possibility of obtaining material from his woodlands for the construction of this barn. The district forester noted on the management plan for these woodlands that a certain compartment (the five-acre woodlot referred to), contained a substantial volume of hemlock and white pine which would be available for this structure. It was estimated that 40,000 board feet of lumber would be sufficient to construct the barn with an ample allowance for unforeseen requirements.

The stand was marked for cutting on a selective basis designed to thin out the closely spaced, large-diameter trees and to remove defective specimens. The marking took out 41,542 board feet or 8300 feet per acre, amounting to a 50 percent cut. Of this, 30,185 feet was hemlock and 11,357 feet was white pine. The average tree was 17 inches in diameter, ran two and a half 16-foot logs in height, and contained 237 merchantable board feet.

Connor engaged the services of a portable sawmill operator who agreed to saw up the timber from a log deck. The farm superintendent, Jack Pierce, supervised the woods operations. Farm help was employed during the winter months to fell the trees, make logs, and skid them to the proposed sawmill site. The sawmilling took place early in the spring and was completed by mid-April. Actual recovery came to 41,902 board feet. Out of this total, 5000 board feet of 2 x 4's were planed and 9000 feet of white pine were milled into novelty siding.

The overall cost of the above operations amounted to $2980.97. Cost relationships on a per thousand board feet basis are as follows:

	Per MBF
1) Woods operation (a) Cutting, trimming, bucking, skidding, and piling lumber ($1094.49 ÷ 41.9 MBF)	$26.12
2) Sawing operation	35.00
3) Total cost for rough lumber	$61.12
4) Planing operation	30.00
5) Total cost of planed 2 x 4's	91.12
6) Milling operation	30.00
7) Total cost of novelty siding	91.12

Several comparisons may be drawn from the above figures. For instance, in the case of the rough lumber which cost $61.12 per thousand board feet, the same quality material purchased locally would cost $90-$100. Finished hemlock 2 x 4's would cost approximately $110 when purchased locally. Comparable white pine novelty siding would vary from $150-$200.

After an elapse of approximately five months, the erection of the building was begun. The final overall dimensions decided upon were 327 feet by 28 feet, which was 27 feet longer than previously estimated. A footing topped by a base wall which extended two feet above ground level provided the foundation for the frame portion of the barn. The framing was composed of 2 x 6 material, as were the truss-type rafters. The interior was divided into a feed and hay room, bull pens, pen-type heifer stalls, a dry cow and calf stable, and a feed alley. A silo was constructed at one end of the barn. Access to the animal stalls is through 8′ x 10′ opening equipped with overhead doors. Each heifer stall was provided with an individual outside exercise yard 150 feet in length. Connor reports that only one man is needed to care for the 109 animals presently housed in this building. In addition, he is very pleased with the quality of construction obtained from home-grown material and takes great pride in his five acre woodlot, which he says "looks as though it had never been cut."

This story does not end here but extends into the future. The five acre woodlot which grew and matured on an abandoned field and produced a crop of merchantable sawtimber in 90 years should, under a system of proper forest management, continue to provide timber for building purposes on Tymor Farm for many years to come.

New Look at the Small Woodlot

(*From page* 16)

estry Association of Portland, Ore. "More forestry in the Douglasfir region has been practiced on private land under the aegis of the Tree Farm banner than in the previous 125 years," the Portland forester declared. "Industrial foresters are quick to grasp the tools developed by public agencies to forward forestry, we invite the same use of tools we develop."

William Laybourne, executive secretary of the Ohio Forestry Association, urged that more emphasis be placed on educating the farm woodland owners. "A great number of Ohio's nearly 240,000 farm woodlands are operated under the philosophy that a tree should not be harvested until after it has died or has been hit by lightning—there we have a problem of timber hoarding."

A Wisconsin forester, James Heinz, of the Tigerton Lumber Co., said that the future of many forest industries in the Lake States is tied up with the management of farm woodlands. Unless small woodlands are managed to provide continuing crops of timber, mills dependent on that wood will have a relatively short life span.

Great progress in encouraging owners of farm-size woodlands in the South to grow trees as a crop was reported by industrial foresters from that 12-state region. "Of the nearly 600 foresters employed by the southern pulp and paper industry, more than 100 are carrying out the work of the conservation forester from Virginia to Texas," Harry M. Roller, of International Paper Company's Southern Kraft Division, stated.

Henry J. Malsberger, forester for the Southern Pulpwood Conservation Association, reported on activities by his foresters in 11 states. In that area the number of small woodlot owners cooperating with SPCA increased from 1035 owners on 90,000 acres cutting 300,000 cords in 1948 to 5300 owners on 282,000 acres and cutting 782,000 cords in 1952.

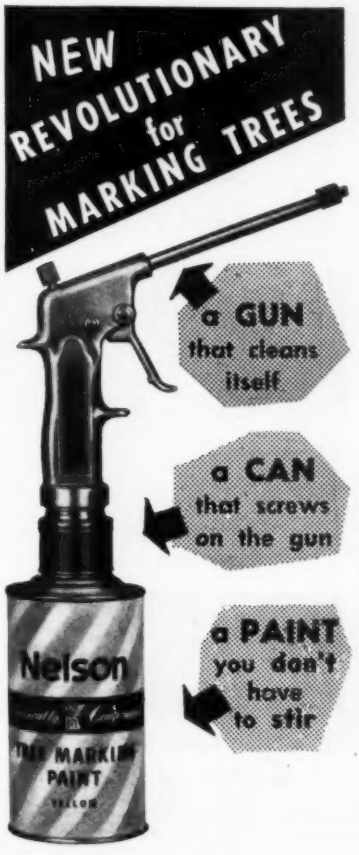
W. B. Hammerle, chief forester for the Southern Pine Association, said 300 professional foresters are now employed by the lumber industry in the South. "These men are primarily engaged in working on company-owned land, but their services are available to adjacent private landowners in varying degree depending upon the size of the individual operation and its dependence upon purchased stumpage."

Harris A. Reynolds, secretary of the New England Forestry Foundation, said that in the past four years his group has served 1100 clients who own a quarter million acres of timberland. These clients have collected about $900,000 for 62,000,000 board feet of timber selectively cut

SCOUT CONSERVATION PROGRAM URGED BY EISENHOWER

President Dwight D. Eisenhower July 14 called upon the Boy Scouts of America to promote conservation as their "good turn in 1954." A message from the President read at the opening session of the National Scout Council in Los Angeles said: "The wise and judicial use of our natural resources is of paramount concern to all Americans. The Boy Scouts of America, as heirs to the future, have much to lose or gain in the years ahead, depending on how those natural resources are managed today.

"As a member of your national executive board and as honorary president of the Boy Scouts, I am familiar with your three-year program under the slogan 'Forward on Liberty's Team.' In the final years of this program I believe that it would be particularly fitting if the Boy Scouts would undertake by concerted action to arouse recognition of the need for adequate protection and wise management of our soil, water, mineral, forest, grassland and wildlife resources."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There are many members and friends of the Association who find it impractical to contribute to its educational activities during their lifetime. Gifts in the form of a bequest are welcomed. Officers of the Association will gladly consult at any time with those who wish to know more about designating gifts for educational work in forest conservation.

Following is a paragraph suitable for incorporation in wills:

"I hereby give, devise and bequeath _____ to The American Forestry Association, Washington, D. C., a non-profit District of Columbia corporation, or its successor, or successors, for the purpose of promoting the corporate activities of said Association."

and marketed through the Foundation, Mr. Reynolds said.

The Foundation's 14 foresters, serving clients in 330 townships in four states, have "put more foresters in actual management than any of the states of the region, *per se*, has done in 40 years," Mr. Reynolds declared.

D. E. Hess, forester for the Glatfelter Pulp Wood Co., of Spring Grove, Pa., reported that "700 farms within a 90 mile radius of Spring Grove are now producing repeated wood crops. Last year about half of these farmers shared almost half a million dollars which our company paid for pulpwood. Production ranged from small farms from which but five cords were cut to other producers who are putting sons through college with money earned from pulpwood sales."

George O. White, state forester for Missouri, said that 38 states now have cooperative forest management projects. In the last fiscal year these project foresters helped 25,352 farmers or other landowners representing 2,500,000 acres of timberland. The harvests from these lands produced wood worth $14,000,000. To carry on these cooperative projects the states spent more than $1,500,000; a little more than one-third was paid to the states by the U. S. Forest Service.

"After nearly 20 years of observation and work in the Tennessee Valley area, considering what has been done and where we are now, we believe the best opportunity for major progress with small woodlands is through the forest products industry," Richard Killbourne, assistant director, division of forestry relations for TVA, told the conference.

Describing the work of the 48 full-time foresters in the Soil Conservation Service, its chief forester, C. B. Manifold said: "We believe many farmers can readily manage their woodlands on the same basis as their other fields, select products for their own use and sell what they cannot use. In other words, we regard trees as a farm crop, just as truly as corn, wheat or alfalfa. The labor return from a tree crop can be a considerable item."

The part America's farm magazine publishers and editors can play in stimulating interest in wise woodland management was stressed by Arch Crawford, president of the Magazine Publishers Association, of New York.

"People in the magazine publishing business are as dependent on continuing crops of wood as the man who runs a peckerwood sawmill," Mr. Crawford stated.

Projecting the present rate of population increase of 220,000 a month in the United States, in terms of increased demand for pulp and paper, Mr. Crawford said: "Last year the United States was consuming paper and paper products at the rate of 396 pounds per person. For ease of figuring let's assume that per capita paper consumption is 400 pounds a year. This means that our expanding population will require at least 600,000 tons more paper and pulp products next year than it did last. Figured another way, it means a market for pulpwood to make 50,000 extra tons of paper a month. That's at least 75,000 cords of pulpwood a month — much of which is going to have to come off small, farm-size woodlots."

Charles H. Sage, of Neenah, Wis., vice president of the Kimberly-Clark Corp. and chairman of the Forest Industries Council, presided as permanent chairman of the Chicago meeting.

Who Said It?

1—If it is un-American to conserve our forests and grasslands, in a very few generations it may be un-American to eat.
2—God Bless America—and let's save some of it.
3—I love to be alone. I never found the companion that was so companionable as solitude.
4—He plants trees to benefit another generation.
5—Trees give peace to the souls of men.

Answers

(1)—Lester Vetie; (2)—Weldon F. Heald, writing on the subject of "Wilderness"; (3)—Thoreau; (4)—Cicero; (5)—Nora Waln. All quotes from "Conservation Quotes" published by the National Park Service, United States Department of the Interior.

When Wind Is High

(*From page* 20)

the spite-hardened criminal, but they burn more than 20 percent of the amount of timber destroyed each year by fire in these states. It's easy to see why. Any accidental fire can be pounced on readily by the fire-fighters, chiefly because towermen know where accidental fires are likely to be set: around farmhouses or along highways. Then, too, an accidental fire is usually set in only one place.

Not so with the deliberate fires. When an arsonist sets out to burn the woods he will: 1) use plenty of matches or torches and set a lot of fires on one property; 2) set the fires "where they ain't," in an area far removed from the crews; and 3) wait until the wind is blowing hard and he cover is dry.

And all too often the few men convicted of burning the woods in the deep south get suspended sentences or only small fines. Some don't even get fined enough to cover court costs. Court costs? Not only did the judge refuse to fine or imprison a woods burner on a case in Louisiana several years ago, but he fined the law enforcement officer for pulling a gun on the culprit!

What reasons do the arsonists give? As State Forester James Craig of Mississippi says, "The reasons run the whole gamut of human emotions." Some are pyromaniacs like a man in Florida who set a fire, then walked over to a nearby hill and watched it burn until an investigator came and picked him up. Or, take the Louisiana man who got tired of the monotony of rural life and wanted to see some action. After being caught he admitted setting the fire, saying "I knew I was breaking the law but I just wanted to see the woods burn at night."

Much of Louisiana's arson fires are traced to hardwood deadening practices of the large landowner, a good forest practice for improving pine stands. Residents think it hurts the game population, so retaliate by setting fire to company lands. This is true on Funny Louis Bayou which runs through the property of world-famous Urania's reforested acres in Louisiana. Timber deadening is only the latest excuse used by them. In that same parish, a timber buyer was found to be back of many of the fires. He burned the woods so the

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landowner would soon have to sell it for salvage, and made a fortune by back-woods standards.

Of course, these are the inveterate woods burners who burn month after month, year after year. They account for most of the fire-damaged timber, but there are hundreds of cases each year where people burn the woods only to accomplish another purpose. One source of such types of fires is the bootlegger, who sets fire to the woods around another bootlegger's still so investigating officers will find the whiskey of his competitor or the fire itself will wipe out his still and whiskey. And some people make a nice living "grunting for worms." They do this by first burning the area, then setting a wooden stake in the ground. When they rub a brick or stick over the post, it vibrates the ground and makes the worms come to the surface. They sell the worms for at least a penny apiece, which is a good profit for the worm grunter but expensive for the timber owner in the area.

A typical woods burner is between 25 and 35 years of age, is illiterate and drinks heavily. Usually he has no radio and in almost no cases takes a newspaper because he can't read it. He's in some kind of illegitimate business like stealing fence posts, stealing timber or running whiskey. He's married and has a four-room "outdoor plumbing" house full of kids. His life is sparked by his love of loafing and his hate for the big landowner.

Somehow or other, he manages to keep an automobile running, but it's usually what has come to be called a "woods burning buggy," a cut-down flivver with no top or hood—nothing left but the motor, wheels and bare necessities. With this conveyance, he can ride down the road and throw torches over both sides like an experienced routeman chucks his daily newspapers.

Because of the weapons they use in their deadly pastime, many of the woods burners have been termed "slow match artists." A "slow match" is simply a piece of cotton plowline serving as a wick with matches tied around the center. The woods burner lights both ends of the rope and throws it into the woods. By the time the rope burns to the matches, setting the woods on fire, he is miles away from the crime.

Another favorite weapon is a cigarette with a match stuck in it head first, which accomplishes the same purpose. Other delayed action weapons used are the candle in a pile of straw, and an apparatus holding matches and a ten-cent magnifying glass in just the right position so the fire is started minutes or hours later by the sun. The accomplished fire-raiser can judge the sun's position and "set" the match to go off at any time he wants. Of coure, the more determined fire-raiser shakes caution to the wind and gallops through the woods on horseback dragging a burning innertube.

Foresters have found that passing laws in the legislature against setting forest fires is only half the answer for stopping the woods criminal. Ample laws are on the books of Louisiana and Florida. In Mississippi, all they need is to change the status of deliberate forest fires from a misdemeanor to a felony. The rest is up to the courts. State Forester James E. Mixon of Louisiana has reminded the landowners for many years that, "I can only get the criminal to the courthouse steps. From there it is up to the courts and public opinion."

Though convictions, even with damning evidence, have been few, all is not dark. The three state foresters, Mixon, Craig and Hux Coulter of Florida, gradually are seeing breaks in the clouds. One encouragement found is that even if a conviction is not obtained, far less trouble is caused by the criminal after he's brought before the judge. Even Sweet Emory Lolley, Florida arsonist of long standing, quit burning the woods after they finally got enough evidence on him to bring him to court, although he was set

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free. And they are getting convictions now and then that encourage them to keep up the work. Coulter and his chief enforcement officer, Joe Schuck, who was an FBI agent for six years, maintain a force of six enforcement officers, one in each fire district, who have the power of arrest. Craig keeps one officer in each district, also. They usually do not make arrests but work through established law enforcement officials. Mixon in Louisiana has two enforcement officers who travel to fires all over the state when called.

Officer Schuck and his men fought one case in Florida for two years and finally got a 90-day sentence for the culprit. On the Crooked River road case, they trailed two men all the way across the state to Jacksonville to make the arrest. This progressive war against the woods burner is showing results which are encouraging. In four years, their conviction totals went from 28 to 31 to 40 to 49. It's slow, but it's climbing.

BANKERS SET TOUR

The first annual forestry tour of the Wisconsin Bankers Association is scheduled for Aug. 2-5 at the Trees for Tomorrow Camp, Eagle River, Wisconsin. The tour is sponsored by the United States and Wisconsin Chambers of Commerce and the Wisconsin Bankers Association. Cooperating agencies are the Wisconsin Conservation Department, Trees for Tomorrow and the State Forestry Advisory Committee.

Rewards are mounting in other areas, also. After the flare-up at Picayune, Miss., the Chamber of Commerce offered a $500 reward for information leading to the conviction of a woods burner and the reward still holds. The Florida Board of Forestry has a standing $250 reward which has been paid in one case. The Florida Bankers Association has a $100 reward which has been paid in two cases already. The Chamber of Commerce of Jena, La., where the Nebo Oil Company operates, posted a $100 reward last October.

Oh yes, things are getting better. In a particularly bad fire-raising county of Florida, a woods burning case came before the grand jury three years ago and was laughed out in 15 minutes, says Hux Coulter.

"Now in that county last year, another woods burning case came before the jury and they deliberated a whole afternoon before throwing it out!"

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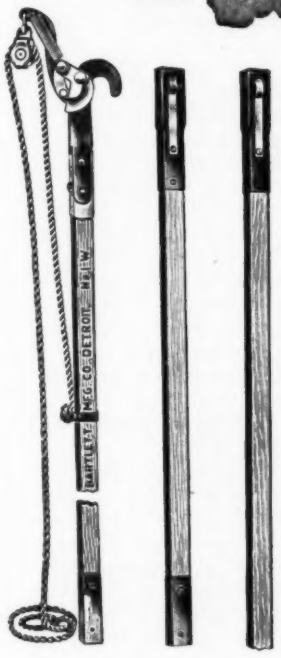

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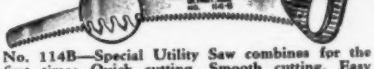

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The Man Who Played With Fire

(*From page* 40)

The men could not be seen from the point nor could they, it developed later, easily see what was going on farther up the canyon.

By 9:45 p.m. there was almost a dead calm. Watchers on the point could see the glow from the spot fire dying down. It was around 10 p.m. that things began to happen.

There was a sudden puff of wind, but this time it was from the north —that is, down-mountain. A shower of sparks went into the air and grass across the line at the head of the gulch caught fire.

Supervisor Thomas thought the blaze could still be controlled then but the wind began picking up speed and the flames began fanning out. Lafferty then ran toward the group of 24 and shouted at them to run for their lives.

"I split them into two strings," he said later, indicating he sent one group to the top of the ridge where a bulldozer had just cut a road. The others he told to follow the canyon contour away from the point in the belief they would easily reach safety through some glades.

About 10:30 p.m., the lights of the survivors began to appear near the top of the ridge. There were nine of them.

Ken Etherton was among the survivors. This is his story:

"We had the fire controlled about 10 o'clock and got ready for our lunch of milk and sandwiches. We had given thanks and had just sat down in the gully when we heard someone yelling for us to run. It was Lafferty.

"We started for the top of the ridge. The rest scattered down the canyon. I just made it."

But the entire group could have made it had everyone gone about 300 feet to the ridge top since the flames did not reach the road's edge on that side until about 11 o'clock.

Meantime, everyone waited for news of the other 15. But as the night went on hope lessened and shortly before dawn Supervisor Thomas sent three men in to begin the search for bodies.

The first was found along the canyon floor about 1500 feet from where the dash for safety had started. The other 14 were closer—in a hollow about 700 feet from the spot-fire scene, and on the contour line. Some of them were sprawled upon one another. Several had tried to claw foxholes but had found themselves halted a few inches down by hardpan. Only two bodies were legally identifiable.

The report of the 1949 Buick green sedan was the clue which led Sheriff Lyle G. Sale to question Pattan who had been cooking at the fire camp about 24 hours after he had started the blaze. Pattan by then had earned $24 when officers found him. He submitted to voluntary questioning which went on almost continuously until he broke down and made a full confession about 11:45 p.m. Saturday. Newspaper photos showing the burned bodies of the victims had a telling effect on him, Sheriff Sale said.

The tragedy was the worst in the Mendocino forest's history and the worst in California in many years. Yet the Mendocino had never gone so long in the season without a single blaze.

The day following the fire, members of the New Tribes Mission told Forest Service officials that, although they had lost 14 members, they held no animosity toward Pattan. Furthermore, they said, they were willing to accept new fire-fighting assignments.

They may get them soon. For the general fire situation in California is the most critical in more than 20 years and may reach the catastrophic heights of 1924.

Full figures are not available, but to June 30 on state and federal lands there had been 1028 fires, most of them in central and southern California. Since January 1, sixteen lives have been lost and damage is estimated at $1,750,000. Eleven blazes have been definitely attributed to arson.

Here are records of some of the season's big blazes:

Sulphur Spring, Angeles Forest, 32,410 acres, $991,000 damage, camper-caused.

Big Dalton, Los Padres Forest, 70,750 acres and still out of control, $275,000 damage, sagging power line.

Hunter-Liggett, Monterey County, 34,400 acres, damage unknown, military operations.

Long Valley, Monterey County, 20,900 acres, damage unknown, harvester-caused.

Alderson, Lake County, 2470 acres, damage unknown, escaped range-improvement burn.

Timber Census

(*From page* 12)

roads, streams, power lines, strip mines, and so on. So by comparing what he sees on the photos with what he sees on the ground, he can find his way around in strange country with little difficulty.

After he has driven as close as he can to a particular plot, the forester usually has to strike off into the wilderness for some distance before he finds the spot he is looking for. This is the most time-consuming part of the survey. Since it is often hard to tell just where you are in the woods from the photos, most plots are located by following a bearing line from some land feature that is easily recognizable both on the ground and on the photos.

If all has gone as planned, he should find himself at the center of one of the plots he examined on the photos. A rough check can be made by comparing the timber stand and topography on the photos with what can be seen on the ground. Usually he comes pretty close, often to within a matter of a few feet of the exact spot marked on the photos.

Once the forester has arrived at and identified the plot of timber to be measured, the rest of the work is just routine. Every tree on the plot more than one inch in diameter must be carefully measured. In addition, several of the larger, merchantable trees are examined and appraised in great detail. No privacy is allowed these sample trees; their innermost secrets are revealed to the inquisitive forester. Before he gets through he knows them all by name. He knows how big around they are, how tall, and how much of this height is usable and how much is just trimming. He has learned how old they are and how hard they have been working the past few years. He knows which of them are in poor health and what is causing their sickness. He can tell how much lumber could be cut from each of them and how good the lumber would be. All these things he records in code with meticulous care. Finally, when he has made a record of everything he has seen and done, he gathers together all his various tools and instruments, replaces them in the packsack, slings the sack over his shoulder, and heads for the road, the car and the next plot.

When all the field plots for a county or similar area have been

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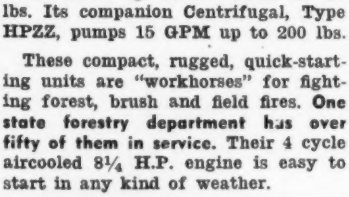

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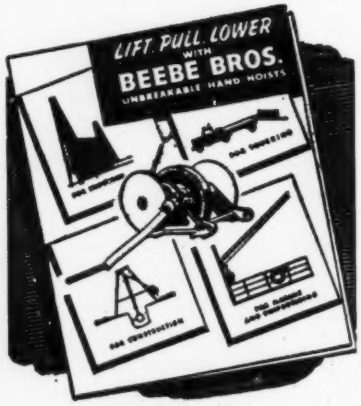

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The job is about done now. All that remains is for the forester to interpret these findings in terms we can all understand. When he has published his report he can lean back in his chair and heave one long sigh. Just one mind you—for before he can draw breath for another, it is time to begin the whole process all over again.

Forest Clinic

(*From page* 13)

edges of the needles, causing the central tissue to dry and resemble reddish straw. In the third instar the larvae move to the leader and to the ends of the uppermost branches. It is during this and later instars that most severe defoliation occurs. There are five feeding and one non-feeding instars. After they have completed feeding, the larvae move to the ground and spin cocoons in the litter and soil.

In Canada and in the northern part of the United States, this sawfly has one generation a year. In southern Michigan, Illinois, Ohio, and Virginia it has two a year, and in the southern part of its range it has three or more. Most of the larvae transform to adults and emerge during the next flight period; however, a small proportion of them becomes dormant when it enters the cocoon stage. These may remain in this condition one or more years before they emerge.

Control—The ideal way to control this sawfly would be through the adoption of management practices inimical to its development and by parasites, predators, and disease. Unfortunately, it is not always possible to utilize these methods and outbreaks occur. In such cases it may be necessary to apply artificial control measures to save valuable plantations or to bring them through a particularly hazardous or susceptible period. Of course, where only a few colonies are present they may be hand-picked and destroyed.

Pine species favored by the sawfly are often practically eliminated from

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the stand before adjacent nonpreferred species are attacked. Some progress toward silvicultural control of the sawfly has been made by replacing favored hosts with nonsusceptible species in planting programs.

Additional relief from the ravages of this sawfly in the North Central States may be obtained by avoiding planting under hardwood overstories, and by the early release of pines already established in these areas. The promotion of fully stocked stands and close surveillance over poorly stocked and widely spaced sand-blow plantations should help to minimize injury.

A large number of parasites and predators attack this sawfly in North America. Among the more important are the egg parasite *Closterocerus cinctipennis* Ashm., and the larval parasites *Spathimeigenia spinigera* Tns., *S. aurifrons* Curran, and *Phorocera hamata* A. & W.

Satisfactory control of sawfly larvae has been reported for practically every stomach poison tested. DDT is the most practical and economical for use on forest plantations; on roadside plantings and ornamentals, either DDT or lead arsenate is satisfactory.

Spraying should be delayed until all larvae have hatched and those that hatched first are about half grown. By this time most of the larvae will be feeding on the more exposed parts of the tree where they will be vulnerable to sprays.

Ornamentals, small plantations, and nursery rows infested with sawflies can be treated most efficiently with small knapsack or hydraulic sprayers, or with portable mist blowers. On forest plantations airplanes, helicopters, or large mist blowers will prove more practical.

Here are directions on the quantity of insecticide and how to prepare it for application by different types of equipment:

Mist Blower and Aircraft.—Apply one gallon of a DDT spray per acre. Prepare this spray by dissolving one pound of technical DDT crystals in one and one-quarter quarts of an auxiliary solvent such as xylene and dilute with fuel oil to make one gallon.

Hydraulic Sprayer.—Apply 300 to 400 gallons of a DDT or lead arsenate spray per acre. To prepare the DDT spray add two quarts of 25 percent DDT emulsion concentrate to 100 gallons of water. To prepare the lead arsenate spray, add four pounds of acid lead arsenate plus one pint of a drying oil to 100 gallons of water.

History of Forest Tools

(*From page* 17)

ward, which made the log turn again, but in the opposite direction. When the log was turning in the proper direction, he could place his chisel — of shell, stone, or copper on the rest, and make a cut. When it was turning in the opposite direction, he couldn't make a cut, of course.

While this tree-lathe would seem to have been only 50 percent efficient, it is likely that since no early tools had the fine finish of a modern steel chisel—and the rate of turning was very slow, probably a good deal of the material was removed just by scraping — friction — so that almost as much work was accomplished when it turned in the opposite direction, as when it turned against the cutting edge.

From this tree-powered lathe came the spring-pole lathe in which a long, springy piece of timber fastened to the floor or wall of a workshop substituted for the tree branch. Such lathes have been used until quite recently in some parts of the world.

For small, fine work, the fiddle-bow lathe was used for thousands of years — and is still in use in some countries. The bow — a small copy of the bow used in archery — has its cord looped once or twice around

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2. Crush out your cigarette, cigar, pipe ashes. Use an ash tray!
3. Drown your campfire, then stir and drown again.
4. Ask about the law before burning grass, brush, fence rows, or trash.

the work being turned, the operator furnishing the power by moving the bow back and forth with one hand, while holding a cutting tool with the other.

The first real improvement came when a means was found of making the lathe turn continuously in the same direction, by means of a big wheel and a treadle similar to that in an old fashioned sewing machine. For many years such lathes were more or less standard.

Wood turning has been a hobby which has fascinated amateur woodworkers for hundreds of years. There was a French queen who turned all sorts of small objects for her own amusement, and today many business and professional people have small electrically-powered lathes in basements or garages which they use in their leisure hours.

Today a lathe is a very versatile device. It can be used not only for making banisters, baseball bats, rolling pins, bowling pins and balls, but hollow pieces, such as dishes or bowls. In such work the wood blank is fastened securely to only one chuck of the lathe so that the inside can be worked freely. Later the finished piece is cut free from the portion fastened to the chuck.

Lathes are also used to make gunstocks, chessmen, and all sorts of objects which are not entirely round, and require other work after being removed from the lathe.

Big commercial lathes frequently have a copying device so that such items as baseball bats, banisters, etc., can be made to a standard size and shape in a few seconds.

The copying lathe shapes the wood blank by means of a series of chisels called "cutterheads" bolted to a shaft mounted near the lathe. While both the cutterhead shaft and the lathe are revolving, they are brought together so that the cutterheads shape the whole piece at once.

Carving machines also produce standard shapes, but use a master spindle to guide cutting tools. Usually carving machines produce a dozen copies at once, as many wood blanks being mounted on nearby shafts. These machines are not used much any more, but in the 1890's when no house or piece of furniture was finished until it was covered with do-dads and jig-saw fanciness, they were in great demand.

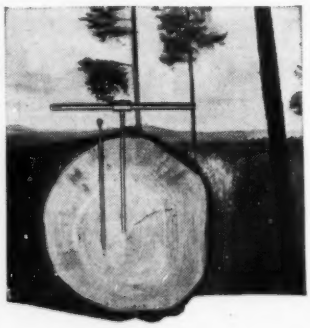
Still another kind of lathe is that which cuts the thin sheets of veneer from which plywood is made. Such lathes hold tremendous "peeler" logs — usually fir — which are revolved against a giant knife blade 10 or 12 feet long. As the lathe turns—about 400 feet a minute—a thin sheet of wood—veneer—is cut off and runs out on a long table. To make logs soft enough to cut easily, they are usually boiled in water for several hours. In the case of mahogany, oak, or other hardwoods, several days' boiling may be required.

Your Shade Trees

(*From page* 23)

they cannot cure the diseases will at least counteract the toxins, or poisons, produced by fungi and bacteria and thereby render them harmless. Furthermore, the possibility of the use of radioactive materials in the control of diseases of plants has already caught the imagination of the scientists. It is entirely feasible.

With all this progress in chemotherapy for your shade trees a note of warning must be sounded. Just as there were quack doctors in the early days of the medical profession so we must be on guard against the unscrupulous "tree doctor." Some states require that all treemen must pass an examination before they are allowed to ply their profession. It reminds us of the classic story of the man who asked a tree surgeon, "What's the matter with that tree?" The so-called tree surgeon of course didn't know, but replied, "Why this tree has the aurora borealis." An enlightened public will not permit such chicanery in the shade tree business.



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It's All Done With Wood

(*From page 9*)

decks, where it withstands fire far better than steel. It's a far cry from this to Fritz Kreisler's violin or Ben Hogan's trusty driver—but both are laminates!

Metal and wood can also be laminated, as in the "sandwich" constructed of the Navy's speedy F7-U jet fighter plane which has a skin of aluminum bonded to a balsa wood core. Economical to produce, it is also lightweight, stiff, durable, self-insulating, and can be made immune to rot, and amazingly fire-resistant.

For house construction sandwich wall panels are in use. Made of plywood with a paper honeycomb core, a panel three-inches thick can take loads of more than ten times heavier than the minimum load required of a standard wall panel. Thus, their big fields seems to be as load-bearing members rather than just coverings or finishes. Despite the advances of concrete and steel, it seems likely that the House of Tomorrow will doubtless have floors, walls and ceilings made of this magic material.

Another woodwaste product is Papreg, developed by the Forest Products Laboratory at Madison, Wis. This paper-base laminate is made from softwood pulp—actually, a paper plastic about half the weight of aluminum, but with a tensile strength comparable to certain aluminum alloys.

Papreg, now produced by a dozen concerns, is so hard that it can best be cut with metalworking tools; is widely used for airplane propellers, aircraft seats, gun turrets, and shields; even flooring for the huge C-97 cargo planes. Its civilian possibilities include radio and refrigerator cabinets, electric fan blades, featherweight furniture.

Wet-strength fiberboard, fabricated from useless grades of Douglasfir, is as strong when wet as when dry because of its unique chemical treatment. (The Navy made extensive use of this amazing wood product during the war, floating tons of supplies ashore intact on the tides.)

Another dramatic container development of the war was the "free fall box" contrived by the Forest Products Laboratory for the Air Force. Constructed of fiberboard derived from woodwaste, this collapsible re-usable container was equipped with airfoil wings so it could be dropped from a speeding plane without cargo chutes, yet without damage to fragile contents such as bottled plasma or delicate instruments.

Novoply is a new composite wood paneling, virtually warp-free, for interior use. Often called "wood mosaic," is made entirely of chips and waste materials. Under severe conditions of humidity, Novoply expands and contracts less than three-tenths of one percent in length and width, as compared to as much as 14 percent across the grain for solid lumber. A three-quarter-inch thickness will carry a load up to 2500 pounds per square inch before breaking, and has much greater insulating properties than Douglasfir.

Good news for the householder is the newest type of plywood, Plankweld. This is a pre-finished, "welded" wood paneling which is sold in strips of varying lengths, and can be applied by anybody who can saw a straight line and hammer a nail. Available in a variety of finishes, these panels are 16½ inches wide; interlock into an unbroken surface, and come fitted with metal clips through which small nails are driven at an angle. With this material, any home handyman can repanel his own ceilings or walls over existing wallpaper, old plaster or bare studs.

Many current applications of wood are made possible by modern chemical treatments which fortify lumber against insects, decay, tropical fungus, vermin, fire, shrinkage, and swelling. An 18-cent application of a new preservative spray, for instance, is expected to add six years to the life of a crosstie, on which American railroads spend $250,000,000 a year for replacement—no suitable substitute for wooden ties having yet been found.

And a final note of progress in the automobile age:

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AMONG OUR AUTHORS

Mr. Kerr

Ed Kerr *(Burn When the Wind is High)* calls Baton Rouge, Louisiana his home town and is press representative for the Louisiana Forestry Commission. A chemist turned journalist, he has worked in various editorial capacities for newspapers, legal journals and trade publications. Since taking over his present job in 1951 he has written a number of free lance articles and collaborated in the production of a tourist guide booklet for Baton Rouge.

Robert D. Wray *(How Uncle Sam Takes a Forest Census)* is editor for the Central States Forest Experiment Station. Because of his on-the-ground knowledge of conservation subjects, he has become a much respected contributor to AMERICAN FORESTS and other journals dealing with use of our natural resources.

Creighton Peet *(History of Forest Tools)* is one of the nation's better known authors of children's books, especially those dealing with scientific subjects. He is a frequent contributor to national magazines and is a children's book review editor for The New York Times. Also included in Peet's background is a stint with Voice of America headquarters in New York City.

Mr. Kearney

Paul W. Kearney *(It's All Done With Wood)* has sold more than 400 articles to the country's leading magazines during his 25 years of free lance writing. A specialist in the conservation field, he has written on fire prevention, wildlife and animals and outdoorsmanship. A recently released book by Kearney "Disaster at Your Doorstep," contains an exhaustive chapter on the topic of forest fires and their control.

Mr. McClellan

James C. McClellan *(A New Look at the Woodlot Problem)* is a lumber association and Forest Service graduate now with American Forest Products Industries. A native of New York, McClellan received his bachelor's degree from the New York State College of Forestry at Syracuse and did graduate work at the same school. He began his professional career in 1933 as a cultural foreman in a CCC camp in the Allegheny National Forest. While with the National Lumber Manufacturers he edited the Conservation News Digest.

THE FUTURE BOOK

Southern Forestry Today—Why is the south now considered by many to be the largest, richest, most diversified and fastest growing field of forestry practice in the nation? How have recent developments helped this vast stretch of territory south of the Mason-Dixon line and east of the plains reach this place of eminence? J. F. Eldredge will answer these and other questions in the next issue of AMERICAN FORESTS.

The Forests of Cyprus—This ancient and strategic country, Henry Kernan reports in a forthcoming article, is overcoming the traditions that for centuries have abused her forest lands. Kernan, who as a Point Four official in Iran has had frequent opportunities to visit Cyprus, writes that better laws based on an increasing awareness of good forestry practices are mainly responsible for the change.

Grass Roots Conservation—There's no climax of charging a bull elephant, triumphant bagging of a wary bighorn sheep or even the limit of honking geese in this story. But it is full of drama. It is a basic case history, a live demonstration, for sportsmen who want to perpetuate the nation's fishing and hunting. It is told by Arthur H. Carhart.

Mr. Anonymous of the Swales—Harry Botsford, whose culinary accomplishments are equalled only by his abilities as a writer and sportsman, treats the life and times of one of our least known game birds—the woodcock.

A NEW LAW GOES INTO EFECT IN MAINE THIS MONTH as forest owners press their drive to secure uniformity of tax assessment of forest lands. Under the terms of the new law, any court of competent jurisdiction shall hold a tax assessment to be excessive upon proof by the forest landowner that it creates an incentive to abandon or strip the land, or prevents his obtaining an adequate annual net return commensurate with the risk involved. For the purposes of the Act, forest land includes any single tract exceeding 25 acres in area under one ownership and devoted to the growing of trees for commercial use. As explained by the backers of the new law, it is to encourage sustained-yield operation of all forest lands by the maintenance of adequate financial incentive through uniformity of tax assessment.

PEOPLE SINGING "I LOVE THY ROCKS AND RILLS, THY WOODS AND TEMPLED HILLS" better demonstrate that love before advancing gullies carry them out to sea, Ernest Swift, Wisconsin's Conservation Director, told members of the Outdoor Writers Association of America in July. Swift pleaded with the outdoor writers gathered at Missoula, Montana, for a greater effort to sell conservation instead of limiting themselves to entertaining articles on the delights of fishing and hunting. There's more to it than the "big buck snorting on a frosty morning," Swift said.

"NOW, AS NEVER BEFORE, AMERICANS MUST BE VIGILANT TO PROTECT their cherished parks and wilderness areas from destruction by predatory interests that seek to exploit them for profit," announced Sigurd F. Olson, of Ely, Minnesota, in accepting the presidency of the National Parks Association. He succeeds William P. Wharton, of Groton, Massachusetts, who served as president since 1935.

TWENTY-NINE "BEAUTY SLEEPERS" PUT INTO SERVICE BY THREE RAILROADS have been named for Southern Pine, the Southern Pine Association has announced.

"THE AMERICAN FORESTRY ASSOCIATION'S HIGGINS LAKE CONFERENCE has developed a conservative, sane program for American forestry," the July 16th issue of "What's Happening in Forestry" reports. ". . . AFA's teams of experts have come up with a program that is practicable; one that can be accomplished in a business-like manner without fanfare or emotion. In short, it calls for consolidation of forestry gains, both public and private, perfection of existing programs, and recommendations for studies of federal, state, private relationships from which further business-like advancements can result."

DR. PAUL SEARS, OF YALE UNIVERSITY, HAS ACCEPTED THE CHAIRMANSHIP of the new advisory technical committee of the American Watershed Council, Inc. Bryce C. Browning, secretary-treasurer of Muskingum Watershed Conservancy District, New Philadelphia, Ohio, will be chairman of the organization's Committee on Watershed Organization.

"TIRED OF SITTIN'" WAS THE COMMENT OF ERNEST BENNETT, towerman at the Lorraine tower, Tangipahoa Parish, Louisiana, in announcing his retirement as a fire watcher after 18 years of consecutive service. He is the second oldest towerman in Louisiana.

GREAT NEED FOR A BROCHURE ON COMMUNITY FORESTS THAT CAN BE GIVEN wide circulation by a centralized association or agency is being stressed by Harris A. Reynolds, secretary of the Massachusetts Forest and Park Association. Mr. Reynolds is urging that The American Forestry Association take the initiative in undertaking the assignment.

A PROPOSED AMENDMENT TO THE FEDERAL RESERVE ACT WHICH WOULD AUTHORIZE national banking associations to make loans on forest tracts was endorsed in principle last month by the Chamber of Commerce of the United States. In a letter to Chairman John W. Bricker (R-Ohio) of the Senate Banking and Currency Subcommittee on Federal Reserve problems, the Chamber said "every possible inducement should be offered to owners of forest tracts to manage them under good forest practices."

THE NATIONAL WILDLIFE FEDERATION HAS COMMENDED THE STATE OF VERMONT sportsmen and the Green Mountain State legislature for "taking a progressive step in behalf of better wildlife management." The legislature recently passed a bill conferring broader regulatory authority upon the Vermont Fish and Game Commission. The Vermont Federation of Sportsmen's Clubs supported the new law, which was approved in the State Senate by a 23 to 5 vote. The new legislation empowers a five-member commission to determine angling seasons and set limits on the size and taking of fish and the authority to restrict game seasons but not to extend them.

MICHIGAN STATE COLLEGE'S DEPARTMENT OF FORESTRY HAS RELEASED an attractive brochure as a part of recent celebrations in honor of 50 years of technical forestry teaching and research at the school. The booklet describes accomplishments of the last half century and also has a section on "Current Division Research" covering the research program now being carried on by the department – including forest ecology, silviculture, forest management, forest economics, reforestation, maple sap production and hydrology. The department is headed by T. D. Stevens.

THE LARGEST AIR FORCE EVER MOBILIZED FOR A PEACETIME TASK IN CANADA, consisting of a fleet of 75 planes from various parts of the continent, is attacking the spruce budworm in New Brunswick forests. The campaign is a continuation of last season's offensive when New Brunswick International Paper Company financed the use of a fleet of planes from Central Aircraft, Incorporated, of Yakima, Washington, for an effective insecticide spraying job that covered 200,000 acres. This year the war against the budworm is directed by Forest Protection, Ltd., a cooperative organization representing not only last year's sponsor but Bathurst Power and Paper Company, Fraser Companies and Irving Pulp and Paper Company. The battle is being carried on over an area of 1500 square miles. In all, 5,000 square miles of New Brunswick forests are under budworm attack.

NUMBER OF PEOPLE WHO PARTICIPATED IN HUNTING AND FISHING in the United States reached an all-time high from July, 1951, to June, 1952, the Wildlife Management Institute reports. Nearly 14 million hunting licenses and 17 million fishing licenses were sold to sportsmen in that period. These outdoor enthusiasts paid out $70,603,207 in license fees.

MORE THAN 100,000 LIVING FENCE POSTS ARE BEING SET OUT IN THE OREGON forest nursery at Corvallis for future use by farmers in the state, Charles H. Ladd, senior farm forester of the Oregon State Board of Forestry reports. The live fence posts are the little green sprouts now beginning to show in the nursery seed beds. They are black locust seedlings which will be shipped to farmers and woodland owners all over the state this coming fall and winter.

FREQUENT RAINS AND RELATIVELY HIGH HUMIDITIES during April, May and June resulted in the lowest spring forest fire danger since 1948 in western parts of Oregon and Washington according to the Pacific Northwest Forest and Range Experiment Station in Portland. The usual summer fire danger is expected, however, this coming month.

THERE IS ENOUGH SAWTIMBER STANDING TODAY IN THE WESTERN PINE REGION alone to rebuild every dwelling in the United States, Chief Forester Ernest L. Kolbe, of the Western Pine Association, told 400 architects in Seattle last month. In his region alone, three-fourths of the commercial forest lands are now under long-range forestry programs, Kolbe said.

THE WEST VIRGINIA CONSERVATION COMMISSION REPORTS a total of 902 incendiary fires in forests in 1952. During the year, approximately 3038 man-caused fires burned a total of 637,000 acres of forest land, with damage estimated at $2,546,285.

MUCH OF MISSOURI FACES A CRITICAL WILDLIFE SITUATION according to M. O. Steen, chief of the Conservation Commission's Fish and Game Division. In a statement on the effects of the prolonged drought, Steen said that most of the southern half of the state faces conditions which may drastically affect wildlife populations. "Streams are extremely low and springs are going dry," he said.

RECOMMENDED READING

The Conservation Yearbook (Second Edition), edited and published by Erle Kauffman, 1740 K Street, NW, Washington 6, D. C. 321 pages, illus. Price $5.50.

In publishing a bigger and better conservation yearbook for 1953, Editor Erle Kauffman has kept abreast of an unusual number of changes in the whole conservation picture since last year. At the same time he has greatly refined and broadened the scope of what has now become a monumental production and a major service to all people working in the general resources field.

To people in conservation, this book is invaluable. The editors of AMERICAN FORESTS find themselves referring to it constantly—on an average of two and three times a day—which is just about the best recommendation that can be given to a reference work of this type. What with the yearbook's telephone listings, it has even replaced the telephone book in some cases.

In comparing the 288-page, 1952 Yearbook with the streamlined 321-page new model, one notes that the shop's old '52 book is dogeared from constant use. The '53 version will probably be more so by the time 1954 rolls around for there have been many changes in the entire field since the first of the year. In addition to that there are more things to refer to in the new edition. A new chapter covering the broad field of conservation education has been added. The book also includes facts and figures in all fields—soil and water, forests and forest products, wildlife and fisheries, the rangelands, parks and the wilderness. More than 500 conservation organizations are included in the new edition in addition to the nation's 3000 soil conservation districts and 5000 names of key policy makers, legislators, planners, executives, managers, technicians, editors and writers.

A tremendous compendium of facts ranging from the field of forest taxation to the migration of birds, the Conservation Yearbook has now become just about the most useful reference book in conservation today.

Smoky Mountain Country, by North Callahan. Published by Little, Brown & Company; Duell, Sloan & Pierce, New York City. 256 pages. Price $4.

Born at Fork Creek, Tennessee, nine miles from the home of his lifelong friend, Estes Kefauver, North Callahan spent his early years in his father's country store where he heard the tuneful mountain music played by the genial loafers on the "bangers and gittars"; found that "eatin' terbaccer" had a certain indigestibility; heard stories of the Revolution and Civil Wars handed down by word of mouth; and learned to love the Smoky Mountains. Scholastic honors and degrees followed in later years along with stints on the rim of the Chattanooga Times, Knoxville Journal and Dallas News but Mr. Callahan's love of his Smoky country persisted. So it was not surprising following his tour of duty in the war to find him back in his native country digging up the history on such enterprises as the TVA, "Grand Ole Opry" and the Melungeons and writing it in a style reminiscent of the late O. O. McIntyre.

American Planning and Civic Annual, edited by Harlean James. Published by the American Planning and Civic Association, 901 Union Trust Building, Washington 5, D. C. 142 pages, illus. Price $3.

Many of us tend to get wrapped up in one or two phases of conservation and consequently miss many important developments in a field that becomes bigger by the year. That's why we need annuals like this and Editor James presents very broad coverage indeed and holds it to a mere 142 pages. Subjects covered as presented by some of the top men in various fields include water resources, regional resources, conservation in practice, state and national parks, planning in cities and towns, power, city waterfronts, riverfront development and zoning.

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WASHINGTON LOOKOUT (Continued from page 5)

INTERIOR DEPARTMENT PROGRAMS AND ADMINISTRATION are being studied by teams of experts to help guide Secretary Douglas McKay in his plans for reorganization of the department. Currently under way is a study of the National Park Service being made by top-side Interior personnel. Each agency will be examined, and reports will be submitted to the secretary by the end of this year. While Interior officials will participate in the studies, some of the teams will be made up, in part, of persons from other departments and from outside government.

PRIVATE SUSTAINED-YIELD FORESTRY WAS GIVEN A SMALL MEASURE of encouragement by action of the House Interior and Insular Affairs Committee in reporting favorably on H.R. 4646, the bill by Representative Ellsworth of Oregon, to authorize the exchange of federal forest lands for private forest lands when federal land acquisition interferes with private sustained-yield forestry. At the present time, landowners are reimbursed in cash at the fair market value of lands acquired by the federal government. However, timber, not cash, is the basis of sustained forestry programs, sustained industries, and sustained payrolls. The only dissenting voice among the witnesses at the hearings was that of Howard Hopkins, assistant chief, U.S. Forest Service. His objections were supported by a letter from J. Earl Coke, assistant secretary, Department of Agriculture. He indicated that the bill might result in timberland being removed from multiple-use management; that there was no assurance that land so exchanged would remain in sustained-yield management; that the communities dependent upon national forest timber would be hurt; that public timber would be removed from competitive sale; and that in condemnation cases, the federal land management agencies would have no discretion as to selection of areas to be exchanged. Representative Ellsworth and other witnesses, however, were able to rebut these points of objection. A similar bill in the Senate (S. 85 by Senator Cordon of Oregon) has been referred to the Committee on Public Works.

TENNESSEE VALLEY AUTHORITY'S RESOURCE DEVELOPMENT PROGRAM was salvaged in the final action of House and Senate on the Second Independent Offices Appropriations bill. Originally the House had eliminated the entire $2,377,000 for TVA resources development. The Senate committee restored $654,000 for forestry development work, but required that the funds come from TVA operations and not from newly appropriated money. Then, on the floor of the Senate the bill was amended to restore $1,350,000 for resources development and to permit use of $500,000 from TVA operations for further forestry work. Following the conference between Senate and House, the bill as passed provides for $850,000 for resource development, of which $675,000 will be from proceeds derived from the operations of TVA. The expressed attitude of the appropriations committees is that eventually all resource development work of the TVA be taken over by state and other federal agencies in the area.

BOTH INTERIOR AND AGRICULTURE APPROPRIATIONS BILLS are awaiting final action to resolve differences in House and Senate versions. As we go to press, both bills are in conference. In the September number we will provide a tabulation showing final action on the major appropriations affecting forestry and related resource activities.

EXTENSION OF THE FOREST SURVEY TO INCLUDE ALASKA and other possessions has been authorized by the House. The bill as passed would include the territories in the surveys authorized by the McSweeney-McNary Act of 1928. These studies, known as the "national forest surveys," provide estimates of timberland area, timber volume, and growth on all forest lands within the states. Purpose of the extended authorization is to learn the extent and volume of Alaskan forests to provide bases for intelligent development of forest industries.

Letters

(*From page 2.*)

fine for the single-track mind, but how about some of the other aspects of conservation? Your many (and in this case long-time) readers who aren't professional foresters or woodland owners would appreciate a little variation in the menu. Recreation, for example, is of tremendous importance to those of us who are interested in the forests for the spiritual and enjoyment, rather than commercial, values. The meeting you have scheduled at Higgins Lake, Michigan, provides an excellent opportunity for the AFA to give recreationists, hunters, fishermen and just plain outdoors lovers the attention they deserve. Here's hoping you take advantage of that opportunity!

M. Faust
New York City

Higgins Lake

EDITOR:

I was much impressed by the effective way in which the Higgins Lake conference was conceived, organized, and managed and the success achieved in accomplishing so much in a short time. To me it demonstrated the opportunity The American forestry Association has to play an important part in the formulation of American forest policy.

The Association is in a position to exert an ever-increasing influence in the effort to solve the nation's problems of natural resource conservation. It is somewhat uniquely able to assemble qualified representatives of all the different viewpoints, economic and political philosophies, and technical specializations and give them a chance for free and open discussion across the table.

Conferences like the one we have just had, and the Congress scheduled for October, are evidences of a healthy mental state in which the objective is the determination of the facts to the best of our ability to determine them. The purpose is, of course, to indicate the essential steps by which the forestry program can be best fitted to the nation's needs with the least possible delay.

I am encouraged by the evidence that The American Forestry Association is going to continue and, as it can, expand its efforts in behalf of all phases of forestry. I hope it will receive all the support and encouragement it needs for the implementation of this program.

H. B. Shepard
Forest Economist
Federal Reserve Bank of Boston

More on Cork

EDITOR:

In your May issue, William Estey discusses the production of cork in the U. S., and in the second paragraph gives some of the characteristics which make cork so valuable for, among other things, bottle stoppers. It seems to me he has omitted the most important quality—the fact that it is impregnated with suberin and is impervious to water.

Your journal has been very valuable to me as a teacher and I also appreciate the good work you are sponsoring.

B. H. Phipps
Emmanuel Missionary College
Berrien Springs, Michigan

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Feature Photo of the Month

Photos used on this page will be of unusual rather than esthetic qualities and subject matter will be restricted to scenes, events, objects or persons related to the use, enjoyment or unique aspects of our renewable natural resources. For each picture selected AMERICAN FORESTS *will pay $10.*

Photo by Jack Rottier

Beauty and the big wheels. Co-eds from the University of Wisconsin make an eye-catching cargo for this log hauler, relic of a bygone logging era. Dubbed Paul Bunyan's Baby Carriage, it is located at Bemidji, Minnesota

AN UNFORGETTABLE EXPERIENCE!

Vacation this summer in the wilderness. There is still time to join the Trail Riders of the Wilderness on that expedition you have been planning to take in the wild rugged back country of our national forests. See for yourself the magnificent beauty of the primitive wilderness as you ride the narrow trails . . . fish in lakes and streams . . . climb the mountain or hike around the lake . . . enjoy the companionship of fellow riders . . . relax beside the evening campfire . . . sleep soundly under a canopy of stars; and return to civilization refreshed and vigorous to tackle the job ahead. That can be your vacation with the Trail Riders . . . AN UNFORGETTABLE EXPERIENCE.

Several of this year's expeditions are completed or in operation; a few are already filled, but additional reservations are available on a number of trips. On filled trips you may be able to pick up a cancellation. We will do our best to include you on the expedition of your choice.

MAROON BELLS-SNOWMASS WILDERNESS—White River and Gunnison National Forests, Colorado, August 11 to 21 and August 26 to September 5. Cost, $215 from Glenwood Springs.

SAN JUAN WILDERNESS—San Juan National Forest, Colorado, August 15 to 25 and September 1 to 11. Cost, $215 from Durango. (FILLED)

CASCADE CREST WILDERNESS—Snoqualmie and Gifford Pinchot National Forests, Washington. August 17 to 29. Cost, $215 from Yakima.

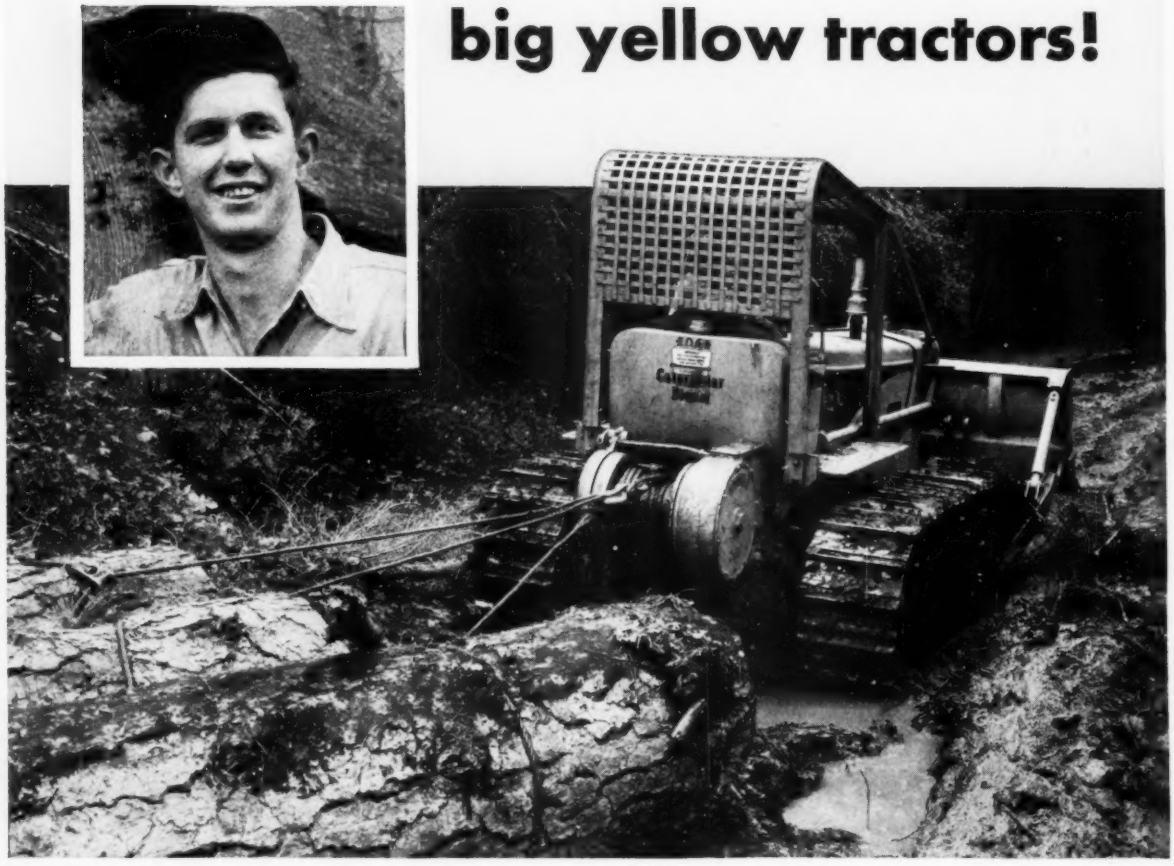
PECOS WILDERNESS—Santa Fe National Forest, New Mexico, September 9 to 20. Cost, $215 from Santa Fe.

Write or wire for detailed information and reservations.

THE AMERICAN FORESTRY ASSOCIATION

919 Seventeenth Street, N. W. Washington 6, D. C.

Young logger puts his chips on big yellow tractors!



Logging is in 23-year-old Lowell Robinson's blood. This is his second season in complete charge of Robinson & Sons' show, nine miles from Grass Valley, Calif.

He has two Cat* Diesel Tractors working for him—let him tell you why: "They're cheaper to operate, last longer and are twice as easy to run as any other tractor. The brakes are a whiz and the steering clutches tops. Our operators like them and keep them in better shape."

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